Self-Assessment of Hand Hygiene in Health Professionals as One of the Tools for Measurement of Provided Health Care Quality

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Abstract: This study was conducted with the aim to review self-assessment, perceptions and attitudes in compliance with hand hygiene in relation to minimize the risk of infection in the patient. The questionnaire exploratory method was used – modified scales used in other studies. The questionnaire measured cognitive factors associated with self-assessment, perceptions and attitudes of health professionals (n = 639) with respect to adherence of hand hygiene in clinical practice. High self-assessment in the adherence with hand hygiene was identified in 83.0% of HW. Only 51.0% of HW highly positively assesses colleagues in compliance with HH. We also found high rate of positive attitude towards HH. Statistically significant differences were identified among doctors and nurses in compliance with self-assessment of HH, attitudes and perceptions of hand hygiene. Significantly more critical in self-assessment of HH were physicians and significantly greater degree of positive attitude towards perception of significance of HH in clinical practice have shown nurses. There is evidence in significant differences in the self-assessment of HH. The practice of self-assessment in HH should be included in the future education policies related with a training of critical thinking, encouraging in compliance of HH and prevention of NI in clinical practice.

Key words: hand hygiene, self-assessment, attitudes, compliance, adherence, hospital acquired infections.

1. Introduction

In the medical practice, HH (hand hygiene) is the essential measurement in prevention of Hospital Acquired Infections during (nosocomial infections NI) in the process of providing health care [1-3]. Despite the relative simplicity of this procedure, the recommendations of hand hygiene is unacceptably low, typically below 50.0%. The compliance of HH in clinical practice is a complex problem. Hands of HW (health workers) are transmitters up to 80.0% of all infections. In developed countries, currently to the issue of NI is paied special attention, not only from the medical point of view, but also from the economical point of view. The mean incidence in hospitals of developed countries is between 6-10.0% [3]. Precisely, NI is considered as an important indicator of the quality of healthcare provided. Several studies show that HH compliance with the recommendations in the prevention of NI is influenced by many factors, specialized knowledge and individual attitudes HW [4-7]. Based on the discovery of the social model of human behavior, individual factors (knowledge, attitudes, intentions, opinions and perceptions) are involved in developing of strategies that improve the behavior of healthcare professionals with the HH [4, 6, 8, 9]. The complex of behavioral determinants with HH determines working conditions (for example HH availability, workload), demographic characteristics, local cultural and religious practices as well as individual cognitive factors [4]. There is an evidence that likelihood of individuals who are used to care more for their hand hygiene in their personal lives, would be...
of a higher assumption that they perceive hand hygiene in their professional life as a duty to ensure the safety of a patient [3, 10]. Among other obstacles perceived in HH associated with reduced adherence in practice is also a false belief about the adequacy of their HW hand hygiene. According to Cola, [6] a professional duty and moral responsibility of HW may affect maintenance of high standards in hand hygiene. Jenner and Jones [11] warns that the failure in meeting the HH rules can reflect the personality characteristics of medical professionals who prioritize their own interests before the needs of others. Hand hygiene in the clinical practice is a performance, which brings benefits to others, so it is a manifestation of personal responsibility and altruistic behavior.

1.1 Self-Assessment

Many HW systematically overestimate their own HH compliance, possible reasons of this fact were identified, which are namely cognitive problems associated with self-assessment [12, 13]. Reasons when people make mistakes with self-assessment is explained with a motivated positive outlook of themselves and thereby can make systemic processing biases when analyzing the situation [6, 14]. Self-assessment is not a process of recognition that involves objective gathering of information, but it is rather influenced by a motivation which leads people to better self-assessment [6, 15]. Attention is drawn to the fact that the self-assessment of HH is unreliable and it should be used only with a great caution [16]. The ability of correct self-assessment of HH competence is not a natural talent, but rather an art that can be learned and gradually improved [7]. The self-assessment can be synonymous of “self-reflection” which requires individual awareness and an ability to analyze knowledge in order to develop newer and more sustainable HH skills [8]. Self-reflection should be used as part of their professional work and education [9, 10]. Faulty self-assessment is probably not the result of dishonesty, but a result of the failure of self-assessment, however, it can constitute major obstacles to improve the evaluation of HH, it is better than the pursuit of HH indeed. Despite the rejection, the self-assessment is an important component of the HH competence [6].

1.2 Attitudes

Very important aspect that greatly affects compliance with HH are attitudes of HW [21, 22]. Attitudes are relatively permanent features of health professional which express his opinion (positive or negative) to the HH, they reflect not only the fundamental cognitive orientation, but also its value system and its effort to focus. HW attitudes seem to be an inherent part of the psychological explanations of their thinking, behavior and survival with HH. Decisions of individuals based on their personal attitudes and attitudes of their social environment is decisive for their domestic, religious, career, political or other activity. Individuals often try based on their attitudes to assign themselves to a group of like-minded, or sentient people and find their identity. Whitby et al. [10] found that attitudes of nurses towards HH were dependent on three factors, namely on: 1. perception of the feeling that the behavior is associated with certain attributes or outcomes that may or may not be beneficial to the individual, 2. subjective perception of standards (personal perception of immediate pressure of environment and other social groups) and 3. perception of behavioral controls (perception of easiness or difficulty in an implementing HH). In the study, the hierarchy of priorities in nurses HH was based on individual perception of risk of infection. Priority of HH was associated with a number of criterias such as: patient's diagnosis, physical appearance of a patient, presence of body fluids of a patient, patient's age and general perception of cleanliness, the degree of “purity and impurity” [10].

1.3 Research Questions

The aim of the study was to investigate the degree of self-assessment, perceptions and attitudes of health
workers towards hand hygiene in specific clinical situations as factors that can reflect the quality of care.

2. Methods

2.1 Design and Sample

The study was conducted in five hospitals in Slovak republic and in three hospitals in Czech republic. The actual empirical data collection was conducted in months of April to July 2014. We chose a combined route of administration of questionnaires. Doctors and nurses of participating hospitals were distributed a total of 850 questionnaires. The responsiveness of the questionnaires was 78.0% (n = 663). The research group enrolled 639 HW from a clinical practice who met the established inclusion criteria:

- Work at in-patient intensive care unit (standard type, or ICU), which can be classified into one of 5 groups (stratification by departments) surgical disciplines;
- Work at the workplace for at least last past 12 months;
- Work in a direct contact with adult patients and conscious patients.

24 questionnaires were excluded due to incomplete filling and non-compliance of inclusive criteria.

2.2 Ethical Considerations

All participants were provided with information about the aims and methods of research. The data collection was anonymous and all participants signed an informed letter of consent. Hospital ethical committee approval for the research project was obtained.

2.3 Sample

From the total of 639 (100.0%) of health workers, from the point of profession—131 (20.5%) were physicians and 508 (79.5%) were nurses. From the point of education of health workers—345 (54.0%) were with an university degree (doctors, nurses) and 294 (46.0%) nurses of non-university education (diploma of nursing program). The average length of practice for doctors was 15.7 years, for nurses with higher education it was 14.7 years and sisters of non-tertiary education it was 21.4 years.

2.4 Questionnaire

For the aim of the study, an exploratory method of questionnaire was used—modified questionnaires according to Pittet et al. [4] and Cole [6] which take into account guidelines of social-cognitive theory applied to a behavior related to health. The concept of the questionnaire was aimed to evaluate cognitive factors associated with a compliance of self-assessment of HH according to the recommended guidelines together with an evaluation of colleagues in compliance with HH, with subjective evaluation of knowledge regarding recommended indications for HH, with a perception of subjective behavior in HH compliance as exemplary/ model, also with a perception of difficulty to comply with the HH - questions 1, 2, 4, 5, 6 and for the cognitive component of attitude HW in relation to a perception of hand hygiene as an useful measure in specific clinical situations—questions 3a, 3b, 3c, 7a, 7b, 7c. Seven-point Likert scale (7-point scale) was used. Motivation to improve hand hygiene was assessed by using a 3-point scale. Reliability of the questionnaire was determined by Cronbach’s alpha with the value of 0.80.

2.5 Data Analysis

Statistical analysis used one-dimensional descriptive statistical method, responses of absolute and relative frequencies were determined. The statistical compliance of samples was tested using the Mann-Whitney test (SPSS software, version 15.0) and concordance of probabilities of same answers was tested using the test for relative frequencies-Chi-square test. All tests reached a significance level of alpha = 0.05. Statistical processing (calculations, tables) were made using Microsoft Office Excel and SPSS, version 15.00.
3. Results

Questions of questionnaire with the exception of one (8) were scored on a 7-point Likert scale from 1 (low level of self-assessment) to 7 (high level of self-assessment), however each question has its own specification of the score (showed in Table 1, 2). Question’s (1, 2, 4, 6) average score response at the lowest values (grade on a scale 1, 2) present low level of self-assessment and the highest values (grade on a scale 6, 7) present a high degree of self-assessment. In contrast, questions (3a, 3b, 3c, 7a, 7b, 7c) average score responses at the highest values (grade on a scale 6, 7) present positive attitudes towards HH. Values at the lowest values (grade on a scale 1, 2) present attitude and perception of HH as an unnecessary measures and non-compliance with HH is perceived with a minimum risk of infection.

3.1 Self-Assessment

Table 1 describes self-assessment related to hand hygiene.

Analysis of the questionnaire confirmed that HW demonstrates a high degree of self-assessment in HH (grade on a scale 6, 7). From the total group of 73.6% (n = 639) HW in their HH for a care of a patient always adhered to the recommended guidelines. Recommended indications for correct HH were known to 82.6% of respondents. Question on this issue scored the highest on the scale (mean 6.19 ± 1.24)—respondents declare that the recommended indications of good HR are very well known to them. In contrast, only 51.5% (mean 5.34 ± 1.36) of respondents assessed that their co-workers rather respected HR according to the recommended guidelines. More than half of 63.3% (mean 5.68 ± 1.35) of respondents rate their behavior with HH as a model and only 1% declare that they are not a model for their colleagues. More than half of 54.5% (5.25 ± 1.62) of respondents think that a compliance with HH is not difficult. On the contrary, 8.3% of respondents think that it is always difficult to comply with HH. There is no clear belief regarding a difficulty of adherence to HH in 37.3% (answers on Likert scale—3, 4, 5).

The SD (standard deviation) values in questions (1, 2, 4, 5, 6) are comparable, relatively consistent, confirming less individual variability in responses of respondents in an extent of self-assessment in relation to HH. The greatest variability of responses is shown in the question 6—It is difficult to adhere to the recommended hand hygiene guidelines (SD = 1.62) and the lowest in the question 1. Do you think that in caring for patient you follow correct HR according to recommended guidelines (SD = 1.16) showed in Table 1.

Table 1 Absolute and relative frequencies of answers with hand hygiene of self-assessment among all respondens.

<table>
<thead>
<tr>
<th>Questions (score specification)</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>N</th>
<th>m*</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absolute frequency/ relative frequency (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you think that in caring for patient you follow good hand hygiene according to the recommended guidelines? (never (1) - always (7))</td>
<td>0</td>
<td>8</td>
<td>24</td>
<td>41</td>
<td>96</td>
<td>214</td>
<td>256</td>
<td>639</td>
<td>5.96</td>
<td>1.16</td>
</tr>
<tr>
<td>Do you know recommended indications of good hand hygiene? (not at all (1) - fully (7))</td>
<td>7</td>
<td>12</td>
<td>14</td>
<td>28</td>
<td>50</td>
<td>176</td>
<td>352</td>
<td>639</td>
<td>6.19</td>
<td>1.24</td>
</tr>
<tr>
<td>Do your colleagues comply with hand hygiene according to the recommended guidelines? (never (1) - always (7))</td>
<td>2</td>
<td>20</td>
<td>36</td>
<td>118</td>
<td>134</td>
<td>180</td>
<td>149</td>
<td>639</td>
<td>5.34</td>
<td>1.36</td>
</tr>
<tr>
<td>Do you think that your behavior with hand hygiene is considered as exemplary by your colleagues? (not at all (1) - of course (7))</td>
<td>6</td>
<td>17</td>
<td>20</td>
<td>72</td>
<td>120</td>
<td>187</td>
<td>217</td>
<td>639</td>
<td>5.68</td>
<td>1.35</td>
</tr>
<tr>
<td>Is it difficult to adhere to hand hygiene according to the recommended guidelines? (always (1) - never (7))</td>
<td>25</td>
<td>28</td>
<td>38</td>
<td>87</td>
<td>113</td>
<td>187</td>
<td>161</td>
<td>639</td>
<td>5.25</td>
<td>1.62</td>
</tr>
</tbody>
</table>

m*—average scale values.
### Table 2 Description of attitudes, beliefs and perceptions related to hand hygiene.

<table>
<thead>
<tr>
<th>Questions (score specification)</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>N</th>
<th>m*</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Absolute frequency/ relative frequency (%)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>3a.</strong> Do you perceive hand hygiene in the following situation “between treating of dirty/ contaminated and clean/ sterile wound” as useless or useful measure to prevent infection in health care? (useless (1) - useful (7))</td>
<td>1 (0.2)</td>
<td>1 (0.2)</td>
<td>0 (0.0)</td>
<td>7 (1.1)</td>
<td>13 (2.0)</td>
<td>27 (4.2)</td>
<td>590 (92.3)</td>
<td>639 (100.0)</td>
<td>6.87</td>
<td>0.55</td>
</tr>
<tr>
<td><strong>3b.</strong> Do you perceive hand hygiene in the following situation “after a contact with body fluids” as useless or useful measure to prevent infection in health care? (useless (1) - useful (7))</td>
<td>0 (0.0)</td>
<td>1 (0.2)</td>
<td>2 (0.3)</td>
<td>6 (0.9)</td>
<td>16 (2.5)</td>
<td>31 (4.9)</td>
<td>583 (91.2)</td>
<td>639 (100.0)</td>
<td>6.85</td>
<td>0.55</td>
</tr>
<tr>
<td><strong>3c.</strong> Do you perceive hand hygiene in the following situation “after removal/ taking off gloves” as useless or useful measure to prevent infection in health care? (useless (1) - useful (7))</td>
<td>9 (1.4)</td>
<td>13 (2.0)</td>
<td>9 (1.4)</td>
<td>35 (5.5)</td>
<td>40 (6.3)</td>
<td>98 (15.3)</td>
<td>435 (68.1)</td>
<td>639 (100.0)</td>
<td>6.31</td>
<td>1.29</td>
</tr>
<tr>
<td><strong>7a.</strong> Does non-compliance with hand hygiene in the following situation “in treating of dirty/ contaminated and clean/ sterile wound” presents risk of infection to patient? (no risk (1) - significant risk (7))</td>
<td>1 (0.2)</td>
<td>1 (0.2)</td>
<td>4 (0.6)</td>
<td>6 (0.9)</td>
<td>19 (3.0)</td>
<td>50 (7.8)</td>
<td>558 (87.3)</td>
<td>639 (100.0)</td>
<td>6.79</td>
<td>0.66</td>
</tr>
<tr>
<td><strong>7b.</strong> Does non-compliance with hand hygiene in the following situation “upon contact with body fluids” present risk of infection to the patient? (no risk (1) - significant risk (7))</td>
<td>0 (0.0)</td>
<td>1 (0.2)</td>
<td>3 (0.5)</td>
<td>8 (1.3)</td>
<td>26 (4.1)</td>
<td>73 (11.4)</td>
<td>528 (82.6)</td>
<td>639 (100.0)</td>
<td>6.74</td>
<td>0.66</td>
</tr>
<tr>
<td><strong>7c.</strong> Does non-compliance with hand hygiene in the following situation “after removal/ taking off gloves” present risk of infection for patient? (no risk (1) - significant risk (7))</td>
<td>11 (1.7)</td>
<td>22 (3.4)</td>
<td>24 (3.8)</td>
<td>61 (9.6)</td>
<td>72 (11.3)</td>
<td>13 (21.3)</td>
<td>313 (49.0)</td>
<td>639 (100.0)</td>
<td>5.85</td>
<td>1.51</td>
</tr>
<tr>
<td><strong>8.</strong> Do you feel that you can improve compliance with hand hygiene? (yes - perhaps - no)</td>
<td>281 (44.0)</td>
<td>294 (46.0)</td>
<td>64 (10.0)</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>639 (100.0)</td>
<td>1.66</td>
<td>0.65</td>
</tr>
</tbody>
</table>

m* - average scale values.

### 3.2 Attitude

In identifying attitudes and perceptions of HH in specific clinical situations (Table 2) a total HW demonstrated positive attitude, HH is perceived as an useful measure to prevent infections. Table 2 describes attitudes and perceptions of hand hygiene in specific clinical situations.

The vast majority of health workers perceive HH as an useful measure to prevent infections (96.5% (6.87 ± 0.55)—3a among the treatment of contaminated and sterile wound; 96.1% (6.85 ± 0.55)—3b after contact with body fluids) and slightly less 83.4% (6.31 ± 1.29)—3c after gloves removal. HH in such situations is perceived quite significantly by respondents. Also, a majority of health workers perceive failure to HH of a patient as a significant risk of transmission of infection (95.1% (6.79 ± 0.66)—7a in the treatment of contaminated and clean/ sterile wound); (94.0% (6.74 ± 0.66)—7b after contact with body fluids); (at least 70.3% (5.85 ± 1.51)—7c after gloves removal). There is a possible problem with respondents (the lowest average value on the scale) with the perception of HH associated with the use of gloves.

Comparison of the average score at the level of individual questions (3a, 3b, 3c, 7a, 7b, 7c) the highest scale score has been shown (mean 6.79 ± 0.66) in the perception of non-HH in the treatment of dirty/
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Youngsters contaminated and clean/ sterile wound as clearly a significant risk of patient’s transmission of infection. The lowest scale score has been demonstrated (5.85 ± 1.51) in the perception of HH associated with the use of gloves, as already mentioned. The SD (standard deviation) in attitudes and perceptions of HH matters show to be more of an individual variability of respondents’ answers. The greatest variability is demonstrated precisely in the question of perception of non-HH after gloves removal (SD = 1.51) and the least variability is demonstrated in the perception of HH for the treatment of contaminated and sterile wound and after a contact with body fluids as an useful measure (SD = 0.55) showed in Table 2.

Motivation and perception of need to improve compliance with HH declared to be 44.0% (mean 1.66 ± 0.65), a little over 46.0% of respondents think that they still have possibilities to improve compliance with HH and 10.0% said they see no possibility to improve compliance with HH (question 8) shown in Table 2.

3.2 Differences in Self-Assessment of Hand Hygiene from the Point of Profession

From the point of profession (doctors, nurses) higher average of scale responses to Likert’s scale (median 7, 6) on questions focused on assessment of self-assessment (1, 2, 4, 5, 6) achieved nursing and showed a higher rate of self-assessment to HH (Table 2). Doctors have shown lower rates of self-assessment, they are more critical (Likert’s scale, median 6.5, Table 2) in subjective assessment of their HH. The results of Mann-Whitney test confirmed statistically significant differences in self-assessment between doctors and nurses (question 1—self-assessment of compliance with HH according to the recommended guidelines (p = 0.004), question 2—subjective assessment of knowledge regarding recommended indications for HH (p < 0.0005), question 4—peer review in compliance with HH according to the recommended guidelines (p = 0.001), question 5—subjective behavior in compliance with HH is perceived by my colleagues as exemplary (p < 0.0005)) shown in Table 3.

The results of Chi-square test confirmed significant differences between responses of nurses and doctors in the self-assessment in relation to HH (1, 2, 4, 5 question; formulation shown below) shown in Table 2.

Nurses with a high level of self-assessment (question 1: 75.8% vs. 64.9%, p = 0.012)—while caring for patients comply with good HR according to the recommended guidelines; (question 2: 85.8% vs. 70.2%,

Table 3  Group comparison of doctors and nurses according to Mann-Whitney test.

<table>
<thead>
<tr>
<th>Groups</th>
<th>Answers of self-assessment HH</th>
<th>Answers of attitude toward HH, perception HH</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Doctors (n=131) m* 5.63</td>
<td>5.73</td>
<td>4.98</td>
</tr>
<tr>
<td>SD</td>
<td>1.40</td>
<td>1.60</td>
</tr>
<tr>
<td>Nurses (n=508) m* 6.05</td>
<td>6.31</td>
<td>5.44</td>
</tr>
<tr>
<td>SD</td>
<td>1.08</td>
<td>1.10</td>
</tr>
</tbody>
</table>
P*           | 0.004* | 0.000* | 0.001* | 0.000* | 0.737 | 0.130 | 0.548 | 0.007* | 0.270 | 0.115 | 0.792 |

m*—average scale values; 7-point scale; p* - p-value of Mann-Whitney test

Table 4  Group comparison of doctors and nurses according to test for equality of the relative sizes.

<table>
<thead>
<tr>
<th>Groups</th>
<th>Scale</th>
<th>Frequency of answers to questions of HH self-assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 (%)</td>
<td>2 (%)</td>
</tr>
<tr>
<td>Doctors (n=131)</td>
<td>6+7</td>
<td>85 (64.9)</td>
</tr>
<tr>
<td>Nurses (n=508)</td>
<td>6+7</td>
<td>385 (75.8)</td>
</tr>
</tbody>
</table>
P*           | 0.012* | 0.000* | 0.008* | 0.001* | 0.897 |

6+7—Likert scale point 6 + 7 combined-high degree of self-assessment HH; p*—p-value of Chi-squared test
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Table 5  Group comparison of doctors and nurses according to test for equality of the relative size.

<table>
<thead>
<tr>
<th>Groups</th>
<th>Likert scale</th>
<th>Answer frequency to questions regarding attitude toward HH, perception HH</th>
<th>n (%)</th>
<th>n (%)</th>
<th>n (%)</th>
<th>n (%)</th>
<th>n (%)</th>
<th>n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doctors (n=131)</td>
<td>6+7</td>
<td>123 (93.9)</td>
<td>123 (93.9)</td>
<td>97 (74.1)</td>
<td>120 (91.6)</td>
<td>121 (92.4)</td>
<td>87 (66.4)</td>
<td></td>
</tr>
<tr>
<td>Nurses (n=508)</td>
<td>6+7</td>
<td>494 (97.2)</td>
<td>491 (96.7)</td>
<td>436 (85.8)</td>
<td>488 (96.1)</td>
<td>480 (94.5)</td>
<td>362 (71.3)</td>
<td></td>
</tr>
<tr>
<td>p*</td>
<td></td>
<td>0.061</td>
<td>0.146</td>
<td>0.001*</td>
<td>0.034*</td>
<td>0.360</td>
<td>0.279</td>
<td></td>
</tr>
</tbody>
</table>

6 + 7—Likert scale point 6 + 7 combined—high degree of self-assessment HH; p*—p-value of Chi-squared test

p < 0.0005—they are familiar with the recommended indications of correct HR; (question 4: 54.1% vs. 41.2%, p = 0.008)—colleagues comply with HR according to the recommended guidelines; (question 5: 66.5% vs. 50.4%, p = 0.001)—subjectively perceived behavior in compliance with HH from the perspective of their colleagues as an example—is significantly more significant than doctors. Doctors are significantly more critical in self-assessment of HH.

3.3 Differences in Attitudes and Perceptions of Hand Hygiene from the Point of Profession

From the point of profession, nurses achieved higher average of responses to Likert scale (median 6.7) in the questions focused on attitudes and perception of HH. They demonstrate more positive attitude to HH and HH is perceived by nurses in the mentioned clinical situations as a useful measure of infection prevention to a greater extent than doctors. The results of Mann-Whitney test confirmed, statistical significance in differences of perception of HH between doctor and nurses (question 3c—perception of HH as an useful measure of infection prevention after gloves removal (p = 0.007) shown in Table 3.

The results of Chi-square test did not show significant differences between responses of nurses and doctors in the matters of attitude and perception of HH (question 3c, 7a; formulation shown below) showed in Table 5.

Nurses with the perception of HH as an useful measure of infection prevention in hospital health care settings (question 3c (85.8% vs. 74.1%, p = 0.001)—after gloves removal (taking gloves off); question 7a (96.1% vs. 91.6%, p = 0.034)—non-compliance to HH between caring for contaminated and sterile wound is perceived as a major risk of infection for patient), it is statistically significant more than that of doctors.

Results of Chi-square test confirmed significant differences between responses of nurses and doctors also in the question of motivation and perception of the need to improve a compliance with HH (question 8). Doctors with a clear incentive to improve compliance with HH (54.2% vs. 41.3%, p = 0.008) is significantly more than that of nurses. A need to improve HH showed significantly more nurses than doctors (49.0% vs. 34.4%, p = 0.003).

4. Discussion

Results of quantitative studies showed high self-assessment of health professionals in connection with HH, on the contrary, assessment of complying with a process of HH of their colleagues is significantly lower, which may be an evidence of poor compliance with HH in the clinical practice. Attitudes and perceptions of the importance of HH in specific clinical situations signal a high intensity, which indicates that HW perceive HH as an useful measure of prevention of NI and its lack of compliance with HH is for the most respondents perceived as a risk of transmission of infection to a patient.

Results of our study confirm the main hypothesis of significant differences between the responses of nurses and doctors in the self-assessment, perception and attitudes towards HH. Nurses with high self-assessment HH are statistically significantly more than doctors. Doctors are significantly more critical in self-assessment of HH. Nurses, however, showed
significantly more positive attitude towards HH than doctors. Statistically, nurses more significantly perceive HH as an useful measure of infection prevention in hospital health care settings than doctors. The higher rate of adherence to HH compared with physicians has been shown by nurses in Pittet et al. [4] study. Several studies have confirmed that nurses have grown better habits regarding HH and utilize them more than doctors do [23, 24]. Significant differences in terms of education of health workers have not been confirmed.

Subjective assessment of compliance with correct HH among health professionals (n=639) has been shown to be more positive than an evaluation of compliance with HH by their colleagues, which was confirmed by Cole study [6]. Authors Pittet [4] and Cole [6] found in their study slightly higher percentage of high self-esteem, which justify a lack of sincerity or rather a fraud. It has been proven also by literature sources, which state that the right compliance of HW with HH is in an average of only 38.7% [3]. Salmon [25] in its observational study found that compliance of health care personnel with HH is 47%. Self-assessment of health professionals in relation to the HH is more positive than its adherence in clinical practice. If HW demonstrate a high degree of confidence in compliance with HH, it may adversely affect the career self-assessment and thus it promotes a low compliance with HH. Cole [6] describes two components associated with a high self-assessment: people tend to believe that they are above average and have a high degree of confidence in their own decision making. In the study, not even a single respondent did not evaluate worse when compared with co-workers (colleagues). Also, the vast majority of respondents declare that they know the recommended indications of correct HH, which also confirms a high opinion of their knowledge and a high degree of self-confidence that may be conditioning risk factor in relation to compliance with HH, which is well described over reporting that are well established in the literature [3, 12, 25-31].

The education of health professionals in HR is an essential part of the team’s work in an infection control. Through the education it is possible to influence an inappropriate practices in patient care and thus contribute in the implementation of quality processes. The evidence is based on studies of educational regarding interventions where the knowledge of HW in HH has been significantly improved [32-34]. It is well known that the education for HH alone is not sufficient [4, 35]. Not all of the educational programs for HH are successful nor their impact is not always sustainable in a long term. Some, particularly single educational interventions have only a short-term impact. It has to be emphasized that training programs themselves are not suitable for a long-term improvement and subsequent strategies aimed at changing the behavior of HW must be a part of multilateral approach to achieve a change. The whole process of implementation of behavior change is very complex and multifactorial. The analysis of study results also found that more than half of the respondents declare high subjective assessment whether they are familiar with the guidelines and indications of HH, but they also show a fairly high opinion about their behavior in HH as a model. Behavior of patterns – the meaning of negative or positive example of behavior is well documented with studies. Pittet et al. [4] state that positive pattern plays a key role in changing the behavior of the HW in the clinical practice in relation to HH issues. HH support is a major challenge worldwide and precisely new facts in the area of self-assessment can be considered as substantial intervention with other strategies that need to be analyzed in a parallel with the previously known risk factors of non-adherence with HH. Particularly strengthening the idea that every individual can influence the behavior of his colleagues.

Interestingly, in the relation to identification of high self-assessment of HH it was found that more than half of the respondents perceive adherence to HH rather as easy. Similar finding was demonstrated in studies of Cole [6] and Sax et al [36]. In contrast, in the study of
Pittet et al. [4] more than half of the respondents evaluate adherence of HH to be difficult. This difference may reflect a perception of a greater importance of HH based on objective evidence, long-term and more vigorous solution of HH in clinical practice of more active implementation of HH measures compared to clinical practice in Slovakia and Czech republic.

Most of HW were identified with positive attitudes in relation to HH in a given clinical situations as an useful measure to prevent infection in health care, except in a situation of compliance with HH in regard to the use of gloves, where fewer respondents perceive significance of HH. There has been an observation of persistent problem with the perception of HH in associated with the use of gloves. Relatively low HH compliance in regard to the use of gloves is confirmed by Girou [37], Ji G, [38] Flores [39] study. In the study of McBryde et al.,[40] gloves were used in more than 75.0% of all health workers in accordance with the guidelines of HH and in the case of doctors, it was only 27.0%. Results of studies have found conflicting results with the respect to adherence of HH with regard to the use of gloves, Thompson, [41] Whitsby, [42] Girou, [37] Flores [39] found that HW who used gloves implemented HH less and vice versa, other studies Meengs, [43] Lankford, [44] Basurrah, [45] Gül et. al. [46] confirmed that HW after the use of gloves more frequently performed HH. It must be stressed that the use of gloves under no circumstances can substitute HH. HW decision making process based on their personal attitudes is decisive for their work. Of course, attitudes also acts as a major motivating factor influencing the direction of individual behavior. This is an important aspect in keeping HH.

In connection with the detection of high level of HH self-assessment is desirable to pay more attention to this issue in the clinical practice and regard a skill of self-assessment as an attribute of an expertise. To reinforce and practice the skills Levett-Jones [47] recommends the use of method for reflective thinking “reflection of the story which may be effective in developing correct self-assessment of own clinical competencies of health workers”. Training of self-evaluation of clinical competence increases critical reflection and supports life-long self-learning. It is documented [48-51] that in the relation to HR it is not sufficient to use a single learning theory which would induce acceptable level of behavior change. Resnicow et al., [52] in order to support HH compliance, recommends using the TTM model (transtheoretical model) and motivational interviews[53] whose the main objective is to help individuals working through their ambivalence regarding a behavior change. The aim is to help HW in thinking and expressing in words their reasons for and against a change in their current behavior (low compliance HH = inadequate HH) which may be in conflict with their professional objectives (to prevent formation and spread of NI) and influence on their fundamental values as professionals (obligation to provide safe health care). Using motivational interviews, an individual can process information, find their own significance, assess their own risks and convince oneself that “behavior change in HH is proper, desirable”.

5. Conclusion

Briefly stated, this study identifies a high self-assessment (over-evaluation) in connection with HH and positive attitudes and perceptions of the importance of HH among majority of HW. The phenomenon of self-assessment and attitudes of HW in compliance with HH should be included in future educational strategies. Self-assessment is a skill that is for HW one of another career development and as a such it can be considered for attribution of an expertise and professionalism. It is likely that the practice of self-assessment through reflections and motivational interviews could enable to get an overview of compliance with HR with the aim to identify strengths and areas for further development of strategies in relation to the prevention of NI and safe healthcare.
Self-assessment is an essential component of competence in hand hygiene. There are various techniques mentioned in the literature, including critical incidents and reflective methods that are used to improve the practice of self-reflection and self-assessment. It is recommended as a part of educational strategy techniques to improve self-esteem, interpersonal relationships critical analysis of the clinical cognitive learning and logical thinking. TTM should be used as the interventionist paradigm of motivational interviewing and could be borrowed and adapted from health promotion and applied to hand hygiene as their function, to increase understanding and enhance motivation in order to achieve sustainable behavioural change. They are attributes which have resonance for a challenging problem like hand hygiene compliance. Also, efficient education and active self-management are considered as major interventions that should lead to changes in attitudes and personal responsibility in the implementation of HH in the clinical practice.

References


