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Nurse in a team: cross-sectional study of nurses' opinions on physician-nurse relationship

Zdenka Sule[1], Ana Marušić[2]

[1] Department of Obstetrics and Gynaecology, University Hospital of Split, Split, Croatia

[2] Department of Research in Biomedicine and Health, University of Split School of Medicine, Split, Croatia

Correspondence to:
Zdenka Sule
Department of Obstetrics and Gynaecology, University Hospital of Split, Spinčićeva 1, 21000 Split, Croatia
zdenka.tara1@gmail.com

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Background: For a long time, physicians have considered themselves superior to nurses, whose duty has been to carry out physicians' orders regardless of their professional and scientific background and efficiency. Nowadays, a more professional approach to nursing profession emphasizes their professional autonomy. There are not many studies of the physician-nurse relationship that lead nurses to obedience towards physicians and their demands. We investigated nurses reactions to situations in which they are asked to fulfil physicians' demands even when such actions are against their knowledge, beliefs or experience.

Methods: We included 94 nurses, employees of the University Hospital Centre Split, Croatia in a questionnaire survey. The questionnaire included demographic data, attitudes toward their work, self-esteem scale and 3 case vignettes in which participants submitted their answers on visual analogue scales. The first case vignette was related to the nurses' knowledge, the second one to their experience, and the third one to their professional beliefs.

Results: Nurses with a high level of self-esteem were more likely to disagree with a subordinate physician-nurse relationship. Also, when it comes to their own opinion and potential, nurses were willing to carry out the demands of the physicians even when it is contrary to their knowledge, experience and beliefs.

Conclusion: Even though they are aware of their autonomy and their prerogative to make their own decisions and act based on their professional competences, nurses seem to be prone to yielding to physicians' demands in order to be accepted by their associates and to avoid any possible conflicts, even when such demands are not scientifically justified.

Introduction

Development of nursing into a profession and opportunity for academic advancement within the occupation rendered obsolete the notion on gender division of medical work into 'male' and 'female' [1]. There are three essential components associated with nursing

philosophy: reverence for life, respect for each human being, and resolution to act on personally and professionally held beliefs [2]. The issue of identity of nursing arises especially in the process of transfer of the nursing education from the hospital into the academic setting. One must not ignore the fact that care for the patients is not a passive act, but an active endeavour as it implies helping the patient to reinvestigate and renew the meaning of life and life plans based on personal and social values. Caring for patients is considered primarily a moral act. Throughout history it has been related to the idea of mercy, compassion and helping those in need. As specific interactive human relationship, apart from moral involvement, it also requires professional work founded on scientific facts [3]. Authentic assessment of medical care in the society and healthcare ensures the conditions for strengthening nurses' awareness of the value of their own profession and the independence of acquired competences and skills from inappropriate external interference [4].

During the 1990s, Croatia underwent considerable changes that paved the way to the professionalization of nursing as independent occupation. The 1993 Healthcare Law, adopted in war-time circumstances, announced a turning point in healthcare and the beginning of professionalization of nursing in Croatia [5]. Enactment of the Nursing Law in 2003 defined the role and responsibilities of nurses. The Law also defined the requirement to adopt nursing standards and specific roles of nurses in medical teams, requirement to keep records of nursing work, educational system, personal responsibility and relationships with physicians [6]. Croatian Nursing Council (HKMS) assumes the responsibility for ensuring that the nursing work is carried out in accordance with the Council regulations [7]. The Council also issues licences for registered nurses, monitors the work of nurses and ensures adherence to professional standards and standards of responsibility [7].

One of the major obstacles to professionalization of nursing is traditional attitude to the profession, stemming from historical development of nursing. Nursing was perceived as auxiliary profession that is not supposed to be autonomous, having the function to provide assistance to medical work and the physicians. The attitude itself would not be such a great impediment to further development of nursing if it were present only among the physicians. However, many nurses still perceive their role in line with such traditional relations between nursing and medicine, i.e. between nurses and physicians.

To date, only a single study on the physician-nurse relationship was conducted in Croatia in 2013 [8], showing that nurses working in the City of Zagreb consider physicians their professional and scientific authorities and are willing to follow even unreasonable physician's orders. In performing their work tasks, high degree of work satisfaction was confirmed in nurses who perceived medical doctors as an authority. Nurses with a higher level of professional education perceived their personal position as inadequate in the labour process [8].

The aim of this study was to investigate the present-day physician-nurse relationships at the University of Split Hospital Centre (USHC) and the opinions and potential reactions of nurses in situations when they are required to carry out physician's orders, which they consider scientifically unjustified and contrary to the nurses' knowledge, experience and convictions.

Participants and methods

This cross-sectional study was conducted at the USHC. The questionnaire was developed for the purpose of the survey, which was conducted from August to December 2017.

All the nurses employed at USHC were the target population (n=760). We aimed to collect 100 questionnaires, which were distributed by handing out 10 questionnaires to the head nurses of 10 out of 13 departments of USHC: Surgery; Internal Medicine; Child Health; ENT; Obstetrics and Gynaecology; Anaesthesiology, Reanimatology and Intensive Care; Neurology; Psychiatry; Heart and Vascular Diseases; and Orthopaedics. The head nurses distributed the questionnaires to the nurses at the Department and collected the completed questionnaires. In this way, we ensured the representativeness of nurses with different specializations. The questionnaire used in the research consisted of several sections (see **Appendix**).

The first part included the demographic characteristics of respondents.

The second part consisted of 8 general questions about the attitudes of nurses toward their work and the attitudes toward work in relation to the level of education. The response to each question was marked on a visual analogue scale of agreement from 0 to 10, where 0 meant “I completely disagree” and 10 “I completely agree”.

The third part consisted of three case vignettes related to professional knowledge, experience and convictions of nurses in relation to requests from physicians. In each vignette, the respondents provided answers on a visual analogue scale from 1 to 10. The questions were related to the ethical position of those involved in the case vignette, resolution of the problem, necessary actions of the nurse and the respondent’s own similar problems and reactions. The vignettes were developed by the first author (ZS), and face-validity tested with 2 medical experts.

The fourth part of the questionnaire was the Rosenberg self-assessment scale [9], consisting of ten statements. The respondents assigned a number from 1 to 5 to each statement, indicating the level of agreement with the statement (1 – strongly disagree, 2 – partly disagree, 3 – undecided, 4 – partly agree, 5 – strongly agree). Items 2, 5, 6, 8, 9 were reverse scored [9]. The range of total sum of answers on the scale was from 5 to 50.

Statistical analysis

The data were entered into a Microsoft Excel file. Data analysis was performed using SPSS 20 software (IBM Corporation, Armonk, New York, US). Categorical variables were presented using absolute numbers and percentages, and continuous variables were presented using median and interquartile range or 95% confidence interval (CI), since the data did not follow normal distribution. The results are interpreted at $P<0.005$. Mann-Whitney U test and Spearman correlation test were used to test statistical differences.

Ethical approval

The research was approved by the USHC Split Ethics Commission (Cl. 500-03/17-01/13, Ref. No. 2181-147-01/06 M.S.-17-2). The research was conducted within the framework of the

Croatian Science Foundation project ("Professionalism in Health – Decision making in practice and research, ProDeM", grant No. IP-2019-04-4882, to Ana Marušić).

Results

Out of the total 100 questionnaires, 94 were completed and returned (94% response rate). The median of age range of participants was 42 (95% CI=21-63) and the median of years of employment was 21 (95% CI=1-44). 31 nurses had secondary level education (34%), 52 had a bachelor's degree in nursing (55%) and 11 respondents had a master's degree in nursing (11%). Only two male nurses participated in the study, therefore gender neutral terms will be used in the further discussion. In order to avoid identification of the respondents, distribution of the participants across USHC departments was not included in the analysis.

General attitudes

As shown in **Table 1**, respondents expressed different levels of general agreement with specific items. Items with high level of agreement (median >9.5 out of maximum 10) were: "Nurses are personally accountable for their work, responsible for their actions and omissions, regardless of advice or instructions from other experts;" and "The primary duty of a nurse is to protect and support the patient's health."

Items with very low median level of agreement (median ≤3.5 out of maximum 10) were: "The primary task of a nurse is to carry out the physician's orders;" "I usually do not share my opinion of the patient with the physician, as my opinion is irrelevant;" and "Nurses in clinical practice should be physician's assistants, not associates or colleagues."

Items with a medium level of agreement (median 4-7 out of maximum 10) were: "Nurse has the same level of authority as other team members;" "As nurses acquire more professional experience, they more often decline the physician's orders which they consider not to be in the best interest of the patient;" and "Treatment of patients is exclusively within the physician's domain of expertise and authority."

The median level of agreement for the item "The primary task of a nurse is to carry out the physician's orders" was lower by 2.8 points on the scale (range 1-10) for nurses with bachelor's or master's degree than for nurses with secondary education (**Table 1**). The median level of agreement for the item "Nurses in clinical practice should be physician's assistants, not associates or colleagues" was lower by 1.7 scale points on the scale (range 1-10) in nurses with bachelor's or master's degree than in nurses with secondary education (**Table 1**).

Self-respect

The median level of agreement for all questions from the self-respect questionnaire was 5, except for the question "I would like to have more self-respect", where median level of agreement was 2 (**Table 2**).

Median level of agreement for the item "I would like to have more self-respect" was higher in nurses with bachelor's or master's degree than in nurses with secondary education

Table 1. Level of agreement for questionnaire items on general attitudes for all nurses and according to their level of education*

Statement	All	Nurses with bachelor's or master's degree	Nurses with secondary school education	*P*†
The primary task of a nurse is to carry out the physician's orders.	2.26 (0.33-4.85)	1.26 (0.15-4.56)	4.02 (2.04-6.37)	0.013
Nurse has the same level of authority as other team members.	4.59 (0.89-7.74)	4.56 (0.63-7.74)	4.96 (1.96-7.80)	0.707
As nurses acquire more professional experience, they more often decline the physician's orders which they consider not to be in the best interest of the patient.	5.08 (1.91-9.66)	6.37 (3.13-9.66)	4.05 (0.95-8.59)	0.224
Nurses are personally accountable for their work, responsible for their actions and omissions, regardless of advice or instructions from other experts.	9.73 (8.74-9.92)	9.85 (9.05-9.92)	9.08 (7.79-9.94)	0.130
I usually do not share my opinion of the patient with the physician, as my opinion is irrelevant.	0.27 (0.00-1.95)	0.23 (0.00-1.64)	0.59 (0.00-4.81)	0.295
Nurses in clinical practice should be physician's assistants, not associates or colleagues.	0.19 (0.00-1.64)	0.11 (0.00-0.57)	1.82 (0.02-6.67)	0.006
Treatment of patients is exclusively within the physician's domain of expertise and authority.	4.39 (0.42-7.82)	4.39 (0.38-7.14)	4.22 (0.63-8.29)	0.454
The primary duty of a nurse is to protect and support the patient's health.	9.81 (9.54-9.92)	9.81 (9.58-9.92)	9.79 (9.18-9.96)	0.884

*General attitudes were measured as level of agreement on a visual analogue scale from 0 to 10 (median and interquartile range).
†Mann-Whitney U test.

(**Table 2**). Total self-respect was presented as the total sum of responses for all items for each individual respondent. The testing confirmed that the nurses with bachelor's or master's degree had higher levels of self-respect than nurses with secondary education (**Table 2**).

Table 2. Scores for self-respect among nurses according to their level of education*

Statements	All	Nurses with bachelor's or master's degree	Nurses with secondary school education	*P*†
On the whole, I am satisfied with myself.	5.00 (4.00-5.00)	5.00 (4.00-5.00)	5.00 (5.00- 5.00)	0.253
I would like to have more self-respect.‡	2.00 (2.00-5.00)	3.00 (2.00-5.00)	2.00 (1.00-5.00)	0.049
I feel I do not have much to be proud of.‡	5.00 (4.00-5.00)	5.00 (5.00-5.00)	5.00 (3.00-5.00)	0.103
I certainly feel useless at times.‡	5.00 (3.00-5.00)	5.00 (4.00-5.00)	4.50 (2.00-5.00)	0.101
I am able to do things as well as most other people.	5.00 (5.00-5.00)	5.00 (5.00-5.00)	5.00 (4.00-5.00)	0.257
At times I think I am no good at all.‡	5.00 (4.00-5.00)	5.00 (4.00-5.00)	5.00 (2.00-5.00)	0.159
I feel that I am as capable as other people.	5.00 (4.00-5.00)	5.00 (4.00-5.00)	5.00 (4.00-5.00)	0.716
I feel that I have a number of good qualities.	5.00 (5.00-5.00)	5.00 (5.00-5.00)	5.00 (4.00-5.00)	0.409
All in all, I am inclined to feel that I am a failure.‡	5.00 (5.00-5.00)	5.00 (5.00-5.00)	5.00 (5.00-5.00)	0.517
I feel that I am a person of worth, at least on an equal plane with others.	5.00 (4.00-5.00)	5.00 (5.00-5.00)	5.00 (3.00-5.00)	0.113
Total score for self-respect	44.50 (40.00-49.00)	46.00 (42.00-50.00)	42.00 (37.00-46.00)	0.011

*Self-respect is measured and presented as level of agreement with given statements at a five-point Likert scale of agreement. The results are presented as median (C) and interquartile range (Q1-Q3).
†Mann-Whitney U test.
‡Negative statements are reverse scored, so that they can be compared with other items.

Spearman correlation test was used to evaluate the relationship between the total level of self-respect and the level of agreement for each item on general attitudes of nurses. Statistically significant, but very low negative correlation was found between the level of self-respect and the level of agreement for the item "The primary task of a nurse is to carry out the physician's orders" (ρ=-0.22; *P*=0.043). Statistically significant positive correlation was found between the level of self-respect and the level of agreement for the item "Nurse has the same level of authority as other team members" (ρ=0.40; *P*<0.001). Statistically significant positive correlation was found between the level of self-respect and the level of agreement for the item "Nurses are personally accountable for their work, responsible for their actions and omissions, regardless of advice or instructions from other experts" (ρ=0.26; *P*=0.019). On the other hand, statistically significant negative correlation was found between the level of self-respect and the level of agreement for the item "Nurses in clinical practice should be physician's assistants, not associates or colleagues" (ρ=-0.33; *P*<0.001), and the item "I usually do not share my opinion of the patient with the physician, as my opinion is irrelevant" (ρ=-0.31; *P*<0,001). The correlation between the level of self-respect and the level of agreement for other items from the general part of the questionnaire was not statistically significant (*P*>0.05) (**Table 3**).

Table 3. Correlation between the total level of self-respect and the level of agreement for each item of general attitudes of nurses*

Statement	Spearman ρ	*P*
The primary task of a nurse is to carry out the physician's orders.	-0.22	0.043
Treatment of patients is exclusively within the physician's domain of expertise and authority.	-0.11	0.284
Nurse has the same level of authority as other team members.	0.40	<0.001
Nurses are personally accountable for their work, responsible for their actions and omissions, regardless of advice or instructions from other experts.	0.26	0.019
I usually do not share my opinion of the patient with the physician, as my opinion is irrelevant.	-0.31	<0.001
Nurses in clinical practice should be physician's assistants, not associates or colleagues.	-0.33	<0.001
As nurses acquire more professional experience, they more often decline the physician's orders which they consider not to be in the best interest of the patient.	0.03	0.764
The primary duty of a nurse is to protect and support the patient's health.	0.16	0.132

*Self-respect was measured and presented as level of agreement with given statements at a five-point Likert scale of agreement; general attitudes are measured as level of agreement on a visual analogue scale from 0 to 10.

Vignettes of nurse-physician relationship

Vignette 1: Challenge to a nurse's medical knowledge

The first vignette described an event where a nurse is placed in the middle of an argument between two physicians, who were also chief physicians at two clinic locations. Each physician insisted on administering a certain medication at their clinic location. Both medications had the same pharmacokinetic and pharmacodynamics properties, but came from different pharmaceutical companies. The problem arose when one of the physicians was on-call duty at a different location, where the physician's choice of medication was not administered.

Table 4 shows the level of agreement of respondents with the statements concerning the vignette. The items with a high level of agreement (median >9.5 on a 1-10 scale) were: "How unethical do you consider the events from this case example?"; "How unethical do you consider the action of Chief Physician from location A?"; "How unethical do you consider the action of Chief Physician from location B?"; and "The nurse in this case example suffered workplace abuse." The items with an extremely low median level of agreement (median ≤3.5) were: "How unethical do you consider actions of the nurse?"; "The nurse should have refused the orders of the Chief Physician from location A to find and administer medication 1"; "Do you agree with the following statement: pharmaceutical companies provide certain material benefits also to nurses, to promote using the medications the companies manufacture?"; "How often do you administer to the patient inappropriate medication or dosage of medication which was recorded in the medication chart by the physician?"; "How often do you carry out an order given by the physician, although

Table 4. Vignette 1: Level of agreement for individual items (median, interquartile range) from by all nurses and according to their level of education*

Question	All	Bachelor's or master's degree	Secondary school	*P*†
How unethical do you consider the events from this case example?	9.73 (9.39-9.92)	9.73 (9.47-9.89)	9.79 (4.05-9.98)	0.916
How unethical do you consider the action of Chief Physician from location A?	9.77 (8.90-9.92)	9.70 (9.39-9.89)	9.85 (7.66-10.00)	0.332
How unethical do you consider the action of Chief Physician from location B?	9.83 (9.60-9.92)	9.81 (9.62-9.89)	9.87 (8.09-10.00)	0.715
How unethical do you consider actions of the nurse?	0.15 (0.00-1.25)	0.15 (0.00-0.76)	0.34 (0.00-4.92)	0.533
The nurse in this case example suffered workplace abuse.	9.85 (9.66-9.96)	9.81 (9.69-9.92)	9.92 (8.78-10.00)	0.346
The nurse should have refused the orders of the Chief Physician from location A to find and administer medication 1.	2.31 (0.11-7.00)	0.88 (0.11-6.91)	4.24 (0.23-7.21)	0.300
How strange do you find the fact that the Chief Physician from location A insistently prescribes one medication and the Chief Physician from location B another medication?	4.89 (0.28-9.85)	4.53 (0.19-9.81)	8.45 (1.02-10.00)	0.131
Do you consider similar cases a common occurrence in your working environment?	5.00 (2.46-8.60)	6.55 (3.33-9.36)	4.87 (2.31-7.31)	0.231
How compliant are nurses towards physicians, even if they know that the physician's request is scientifically unsubstantiated or potentially unjustified?	6.93 (4.56-8.70)	7.07 (4.63-8.52)	5.91 (4.56-9.22)	0.956
Do you agree with the following statement: pharmaceutical companies provide certain material benefits also to nurses, to promote using the medications the companies manufacture?	0.87 (0.11-4.72)	0.59 (0.15-4.74)	1.15 (0.00-4.26)	0.840
How often do you administer to the patient inappropriate medication or dosage of medication which was recorded in the medication chart by the physician?	0.38 (0.04-2.43)	0.34 (0.08-1.48)	0.87 (0.04-4.00)	0.247
How often do you carry out an order given by the physician, although you knew that the order was probably wrong?	2.60 (0.46-5.48)	2.51 (0.34-4.83)	3.84 (1.64-7.00)	0.135
How often are you being called incompetent because you refused to administer a medication which was prescribed on the phone?	0.27 (0.00-2.17)	0.27 (0.00-1.79)	0.23 (0.00-3.00)	0.859
How often do you act beyond your level of competence and at the level of competence of a physician?	4.96 (1.25-7.81)	5.06 (1.56-8.29)	3.00 (0.23-7.38)	0.218

*Level of agreement from the first vignette questionnaire is measured and shown on a visual analogue scale from 0 to 10.
†Mann-Whitney U test.

you knew that the order was probably wrong?"; and "How often are you being called incompetent because you refused to administer a medication which was prescribed on the phone?". There were no statistically different responses between nurses with different levels of education (**Table 4**).

Out of the total number of respondents, 84 nurses (93%) considered that the incident should have been reported, with the following distribution for the question "To whom?": 73 (87%)– head nurse of the clinic; 2 (2%)– head nurse of the hospital; and 9 (11%)– hospital management.

The correlation between the total level of self-respect (level of self-respect) and the level of agreement (level of agreement) was tested for each item of the first vignette questionnaire, using the Spearman ρ test. Low positive correlation was found between the level of self-respect and the level of agreement for the item "How unethical do you consider the events from this case example?" with the level of agreement for the item "How unethical do you consider the action of Chief Physician from location A?" and the level of agreement for the item "How often do you act beyond your level of competence and at the level of competence of a physician?" (**Table 5**).

Table 5. Correlation between the total level of self-respect and the level of agreement for each item of the first vignette questionnaire*

Questions	P	*P*
How unethical do you consider the events from this case example?	0.27	0.011
How unethical do you consider the action of Chief Physician from location A?	0.13	0.218
How unethical do you consider the action of Chief Physician from location B?	0.24	0.021
How unethical do you consider actions of the nurse?	-0.08	0.459
The nurse in this case example suffered workplace abuse.	0.18	0.090
The nurse should have refused the orders of the Chief Physician from location A to find and administer medication 1.	0.04	0.737
How strange do you find the fact that the Chief Physician from location A insistently prescribes one medication and the Chief Physician from location B another medication?	0.06	0.592
Do you consider similar cases a common occurrence in your working environment?	-0.07	0.495
How compliant are nurses towards physicians, even if they know that the physician's request is scientifically unsubstantiated or potentially unjustified?	0.09	0.403
Do you agree with the following statement: pharmaceutical companies provide certain material benefits also to nurses, to promote using the medications the companies manufacture?	0.00	0.963
How often do you administer to the patient inappropriate medication or dosage of medication which was recorded in the medication chart by the physician?	0.06	0.563
How often do you carry out an order given by the physician, although you knew that the order was probably wrong?	0.06	0.576
How often are you being called incompetent because you refused to administer a medication which was prescribed on the phone?	-0.11	0.313
How often do you act beyond your level of competence and at the level of competence of a physician?	0.24	0.021

*Self-respect is measured and presented as level of agreement with given statements at a five-point Likert scale of agreement; level of agreement for the first vignette questionnaire is measured and presented on a visual analogue scale from 0 to 10. Spearman correlation coefficient ρ is used to calculate correlation.

In addition to completing the questionnaire, nurses also provided their own opinions on the vignette. Based on the answers, categories were established for opinions and potential reactions of nurses in the presented case (**Table 6**).

Table 6. Correlation between the total level of self-respect and the level of agreement for each item of the first vignette questionnaire*

Question	Categories of answers	No. (%)*
Opinion on vignette 1 (n=82)	The physician's conduct towards the nurse was unethical and unnecessary	39 (48%)
	The nurse is a collateral victim of confrontation between two physicians	21 (26%)
	This vignette is common in everyday work	15 (19%)
	The nurse should have obeyed the physician	7 (9%)
Potential response (n=75)	I would find and administer the medication prescribed by the physician	66 (88%)
	I would not obey the physician's order	9 (12%)

*Number of responses for a specific category; total number of respondents for each question differs depending on the number of respondents that provided an answer.

Vignette 2: Challenges to the nurses' medical experience

The second vignette described inadvertent omission in treating of a patient. The dressing changes schedule was not followed, due to emergency cases and "more important" patients. The nurse warned the ward physician of a deteriorating condition for a particular patient.

Table 7 shows the agreement of respondents with the statements concerning the vignette. The items with high level of agreement (median >9.5, scale range 1-10) were: "How unethical do you consider the events from this case example?"; "Do you agree with the statement that the nurse should have immediately report to the responsible persons the mistreatment of a patient in severe condition?"; "How insulting do you find the response (comment) of the physician, after the nurse had warned him of severe condition of the patient?"; and "Do you consider that nurses, regardless of the level of education, have the right to intervene in (similar) situations if they recognises substandard treatment by other members of a medical team?" The items with extremely low median level of agreement (median ≤3.5) ware: "How often were you in a situation that the physician raised their voice (i.e. shouted) at you because you gave your opinion on the case, although they insisted to be right?"; "How often were you in a situation that you are asked for your professional opinion at joint meetings of nurses and physicians?"; and "If the physician tells you one time "You do not have a doctor of medicine degree to do this!" – is this enough for you to never again try to suggest anything to a physician?"

No statistically significant differences were found for the items in relation to the education level of nurses, except "If the physician tells you one time "You do not have a doctor of medicine degree to do this!" – is this enough for you to never again try to suggest anything to a physician?". For this item, higher level of agreement was found for nurses with bachelor's or master's degree, compared to nurses with secondary education (**Table 7**).

There was no statistical significant correlation between the level of agreement of second vignette questionnaire and the total level of self-respect (P>0.005; **Table 8**).

In addition to completing the questionnaire, nurses also provided their own opinions on the first vignette. Based on the answers, categories were established for opinions and potential reactions of nurses in the presented case (**Table 9**).

Table 7. Vignette 2: Level of agreement for individual items (median, interquartile range) from by all nurses and according to their level of education*

Question	All	Bachelor's or master's degree	Secondary school	*P*†
How unethical do you consider the events from this case example?	9.75 (6.19-10.00)	9.69 (6.21-9.92)	9.89 (6.17-10.00)	0.577
Do you agree with the statement that the nurse should have immediately report to the responsible persons the mistreatment of a patient in severe condition?	9.46 (6.48-9.96)	9.65 (8.35-9.96)	8.04 (5.58-10.00)	0.155
How insulting do you find the response (comment) of the physician, after the nurse had warned him of severe condition of the patient?	9.90 (9.58-10.00)	9.85 (9.62-10.00)	9.92 (8.39-10.00)	0.735
In your experience, how common are the cases of disregarding the treatment schedule of seriously-ill patients in order to give priority to "more important" patients?	6.72 (4.57-9.58)	6.45 (3.62-9.51)	7.13 (4.75-9.62)	0.480
How often were you in a situation that the physician raised their voice (i.e. shouted) at you because you gave your opinion on the case, although they insisted to be right?	2.13 (0.30-5.01)	1.89 (0.23-4.64)	3.13 (1.28-7.00)	0.115
How often were you in a situation that you are asked for your professional opinion at joint meetings of nurses and physicians?	3.17 (0.36-7.18)	3.45 (0.61-6.55)	3.00 (0.34-7.80)	0.879
How dissatisfied are you with lack of participation at such meetings?	4.87 (0.80-8.02)	5.36 (0.92-8.24)	4.56 (0.34-7.00)	0.302
If the physician tells you one time "You do not have a doctor of medicine degree to do this!" – is this enough for you to never again try to suggest anything to a physician?	3.37 (0.27-6.78)	1.23 (0.19-5.02)	6.00 (1.11-9.89)	0.014
Do you consider that nurses, regardless of the level of education, have the right to intervene in (similar) situations if they recognise substandard treatment by other members of a medical team?	9.81 (8.81-9.96)	9.77 (9.04-9.96)	9.92 (6.44-10.00)	0.830
Do you consider that the term "doctor-nurse game", i.e. subtle conveying of information to the physician without questioning his authority can improve the very complicated and sometimes disharmonious relationship between nurses and physicians?	6.87 (4.77-9.50)	6.74 (4.71-9.43)	7.00 (4.83-9.92)	0.701
How often do you administer to the patient inappropriate medication or dosage of medication which was recorded in the medication chart by the physician?	0.38 (0.04-2.43)	0.34 (0.08-1.48)	0.87 (0.04-4.00)	0.247

*Level of agreement from the second vignette questionnaire is measured and shown on a visual analogue scale from 0 to 10.
†Mann-Whitney U test.

Vignette 3: Challenges to the nurses' convictions

The third vignette described the experience of a midwife from Knin who was reprimanded by the competent authorities and dismissed from work because she invoked her right to conscientious objection and refused to participate in voluntary abortion procedure. The nurse's case was published in daily newspapers.

Table 10 shows the agreement of respondents with the statements concerning the vignette. Items with high level of agreement (median >8) were: "Do you consider that a number of similar cases occur in practice, but the public has no knowledge of them?"; "Do you consider that the actions of contacted bodies (hospital management, Nurses' Union, etc.) were unethical?"; and "Do you agree that the European Court of Human Rights will uphold J.S.'s position?" The items with extremely low median level of agreement (median ≤3.5) were: "How often were you in a situation to carry out a procedure which was contrary to your convictions?"; "Do you agree with the statement that midwife J.S. acted unprofes-

Table 8. Correlation between the total level of self-respect and the level of agreement for each item of the second vignette questionnaire*

Self-respect	Spearman ρ	*P*
How unethical do you consider the events from this case example?	0.03	0.756
Do you agree with the statement that the nurse should have immediately report to the responsible persons the mistreatment of a patient in severe condition?	0.07	0.515
How insulting do you find the response (comment) of the physician, after the nurse had warned him of severe condition of the patient?	0.05	0.666
In your experience, how common are the cases of disregarding the treatment schedule of seriously-ill patients in order to give priority to "more important" patients?	0.10	0.373
How often were you in a situation that the physician raised their voice (i.e. shouted) at you because you gave your opinion on the case, although they insisted to be right?	-0.07	0.536
How often were you in a situation that you are asked for your professional opinion at joint meetings of nurses and physicians?	0.16	0.126
How dissatisfied are you with lack of participation at such meetings?	0.09	0.426
If the physician tells you one time "You do not have a doctor of medicine degree to do this!" – is this enough for you to never again try to suggest anything to a physician?	-0.02	0.848
Do you consider that nurses, regardless of the level of education, have the right to intervene in (similar) situations if they recognise substandard treatment by other members of a medical team?	0.08	0.473
Do you consider that the term "doctor-nurse game", i.e. subtle conveying of information to the physician without questioning his authority can improve the very complicated and sometimes disharmonious relationship between nurses and physicians?	0.14	0.189

*Self-respect is measured and presented as level of agreement with given statements at a five-point Likert scale of agreement; level of agreement for second vignette questionnaire is measured and presented on a visual analogue scale from 0 to 10.

Table 9. Answers (%) of nurses according to categories of answers for the second vignette

Question	Categories of answers	No. (%)*
Opinion on the case (n=68)	The physician should not take credit for nurses' work	6 (9%)
	The nurse should have reacted earlier	9 (13%)
	The nurses acted correctly	24 (35%)
	The physician's conduct was unethical	29 (43%)
Potential response (n=68)	I would not obey the physician's order	29 (43%)
	I would not disobey the physician's order	19 (30%)
	I would report on the patient's condition to another level	20 (29%)

*Number of responses for a specific category; total number of respondents for each question differs depending on the number of respondents that provided an answer.

sionally?"; "Do you agree with the comment the physician made on the actions of midwife J.S.?"; "Would you personally agree to participate in a medical procedure (physician-assisted death, in vitro fertilisation, sterilization) which may be medically justified but against your fundamental beliefs?". There were no statistically significant differences for any of the items from the questionnaire in relation to the level of education of nurses (**Table 10**).

There was a low statistically significant positive correlation of level of agreement for the item "Do you consider that, in a way, conscientious objection exposes a person to stigmatization or discrimination?" and the total level of self-respect (**Table 11**).

In addition to completing the questionnaire, nurses also provided their own opinions on the third vignette. Based on the answers, categories were established for opinions and potential reactions of nurses in the presented case (**Table 12**).

Table 10. Vignette 3: Level of agreement for items (median, interquartile range) from the third vignette questionnaire for all nurses and according to their level of education*

Question	All	Bachelor's or master's degree	Secondary school	*P*†
Do you consider that a number of similar cases occur in practice, but the public has no knowledge of them?	7.88 (4.87-9.75)	7.79 (4.81-9.69)	8.09 (5.31-9.92)	0.430
How often were you in a situation to carry out a procedure which was contrary to your convictions?	2.04 (0.17-4.29)	1.22 (0.23-3.36)	2.44 (0.08-4.89)	0.558
Do you consider that religious and/or moral convictions should have priority over professional tasks of nurses?	4.39 (1.05-6.37)	4.00 (1.00-5.69)	4.77 (1.11-6.76)	0.776
Do you consider that, in a way, conscientious objection exposes a person to stigmatization or discrimination?	5.00 (1.00-8.30)	5.08 (1.26-8.40)	4.47 (0.46-7.44)	0.239
Do you consider that the actions of contacted bodies (hospital management, Nurses' Union, etc.) were unethical?	9.45 (6.68-9.90)	9.66 (8.36-9.89)	7.44 (3.17-9.96)	0.122
Do you agree with the statement that midwife J.S. acted unprofessionally?	0.42 (0.04-2.61)	0.27 (0.04-1.26)	1.49 (0.08-5.00)	0.096
Do you consider that if midwife J.S. had a written record of her religious belief she would have been exempted from performing abortions and similar medical procedures?	4.96 (2.13-7.68)	5.00 (3.03-8.24)	4.60 (0.92-7.09)	0.440
Do you agree with the comment the physician made on the actions of midwife J.S.?	0.19 (0.00-0.67)	0.19 (0.00-0.65)	0.15 (0.00-0.84)	0.853
Do you agree that the European Court of Human Rights will uphold J.S.'s position?	8.35 (4.75-9.87)	8.39 (5.02-9.89)	6.09 (2.15-9.85)	0.287
Would you personally agree to participate in a medical procedure (physician-assisted death, in vitro fertilisation, sterilization) which may be medically justified but against your fundamental beliefs?	1.63 (0.13-5.03)	1.53 (0.15-4.98)	1.80 (0.11-6.13)	0.833

*Level of agreement from the third vignette questionnaire is measured and shown on a visual analogue scale from 0 to 10.
†Mann-Whitney U test.

Table 11. Correlation between the total level of self-respect and the level of agreement for each item of the third vignette questionnaire*

Questionnaire items	Spearman ρ	P
Do you consider that a number of similar cases occur in practice, but the public has no knowledge of them?	-0.17	0.119
How often were you in a situation to carry out a procedure which was contrary to your convictions?	-0.06	0.564
Do you consider that religious and/or moral convictions should have priority over professional tasks of nurses?	0.03	0.811
Do you consider that, in a way, conscientious objection exposes a person to stigmatization or discrimination?	0.25	0.017
Do you consider that the actions of contacted bodies (hospital management, Nurses' Union, etc.) were unethical?	0.00	0.994
Do you agree with the statement that midwife J.S. acted unprofessionally?	0.11	0.316
Do you consider that if midwife J.S. had a written record of her religious belief she would have been exempted from performing abortions and similar medical procedures?	0.01	0.962
Do you agree with the comment the physician made on the actions of midwife J.S.?	0.03	0.816
Do you agree that the European Court of Human Rights will uphold J.S.'s position?	0.02	0.822

*Self-respect is measured and presented as level of agreement with given statements at a five-point Likert scale of agreement; level of agreement for the third vignette questionnaire is measured and presented on a visual analogue scale from 0 to 10.

Table 12. Answers (n, %) of nurses according to categories of answers for the third vignette

Question	Categories of answers	No. (%)*
Opinion on the case (n=66)	Nurses have the right to refuse assisting in a medical procedure if the procedure is against their convictions	66 (100%)
Potential response (n=60)	I would find a replacement for the procedure	7 (12%)
	I would refuse to assist in the procedure	36 (60%)
	I do not know	8 (13%)
	I would obey physician's orders	9 (15%)

*Number of responses for a specific category; total number of respondents for each question differs depending on the number of respondents that provided an answer.

Discussion

The results of our study, conducted at the USHC Split, which covered 94 nurses with mostly a bachelor's degree in nursing, demonstrated that physicians still represented professional authority in this health institution. Nurses seldom participated at joint meetings of medical teams, where they could express their professional opinions on patients. A matter of concern is that the respondents did not see a problem with this. This is confirmed by the respondents' indifference to having an equal position as other members of the medical team.

Higher-educated nurses who participated in the study were less supportive of the subordinate relationship between physicians and nurses and expressed a higher level of self-respect when compared to nurses with secondary education. However, the responses given by all the respondents, and especially answers related to personal opinions and potential reactions to provided vignettes, indicate the need that in the future nurses adopt an assertive approach to conflict resolution and refuse to carry out a decision which they find harmful to the patient.

The conclusion that USHC Split nurses do not see themselves only as physician's assistants is supported by very low level of agreement for the item "Nurses in clinical practice should be physician's assistants, not associates or colleagues". If we compare these findings with the study conducted at the same hospital in 2015, when the nurses could not take a definitive stand and only partially agreed with the statement "Nurses are not mere assistants" [10], we can assume that the positive changes in the attitudes of nurses are the consequence of strategic development of nursing profession and integrating the profession with opportunities for academic advancement. This attitude of nurses is confirmed by the low level of agreement for the item "The primary task of a nurse is to carry out the physician's orders."

Indifferent attitude of the nurses to the item "Nurse has the same level of authority as other team members" raises some concerns, because many respondents had bachelor's degree and some among them also a master's degree.

We found the highest level of agreement for the following items: "Nurses are personally accountable for their work, responsible for their actions and omissions, regardless of advice or instructions from other experts" and "The primary duty of a nurse is to protect

and support the patient's health", supporting the assumption that nurses are aware of the fundamental principles of nursing profession.

Respondents with higher level of education (bachelor's or master's degree) expressed lower level of agreement for the items "The primary task of a nurse is to carry out the physician's orders" and "Nurses in clinical practice should be physician's assistants, not associates or colleagues". This is not surprising, considering that more and more nurses obtain university master's degrees in nursing, closely approaching the number of years of study to those for the medical degree. This represents considerable progress for nursing in Croatia, especially in light of the fact that until recently nurses acquired basic education only in secondary medical schools and started working after graduation.

The results of the first vignette indicate that nurses considered that both physicians acted unethically. The respondents agreed that the nurse was caught in the middle of confrontation between two physicians who persistently prescribed a specific medicine at their clinics, because they received benefits from the pharmaceutical companies, although the medications have the same effect and effectiveness. Contrary to the results of the Ružić study [8], which showed that, during their clinical practice, nurses carried out unreasonable request of a physician with possible lethal consequences for the patient, the respondents in our study expressed a low level of agreement (≤3.5) for the items "How often do you administer to the patient inappropriate medication or dosage of medication which was recorded in the medication chart by the physician?", "How often do you carry out an order given by the physician, although you knew that the order was probably wrong?" and "How often are you being called incompetent because you refused to administer a medication which was prescribed on the phone?". This indicates that nurses at USHC are sometimes exposed to unreasonable demands of physicians and have to carry out their orders, but very seldom.

Although they disagreed with the physicians' actions and their conduct towards the nurse, a majority of the respondents stated as their potential reaction in the same situation would be to find and administer the requested medication, or obey physician's orders, which is also reflected in the low level of agreement to the item "The nurse should have refused the orders of the Chief Physician from location A to find and administer medication 1." It remains unknown why the response rate for these two questions was relatively low: out of 94 participants 82 gave their opinion on this vignette and 75 participants reported their potential response.

In the second vignette, high level of agreement for the items: "How unethical do you consider the events from this case example?", "Do you agree with the statement that the nurse should have immediately report to the responsible persons the mistreatment of a patient in severe condition?", "How insulting do you find the response (comment) of the physician, after the nurse had warned him of severe condition of the patient?" and "Do you consider that nurses, regardless of the level of education, have the right to intervene in (similar) situations if they recognise substandard treatment by other members of a medical team?" indicate that the respondents perceived physician's conduct towards the nurse as unethical and that the nurse acted correctly when she warned the physician of severe condition of the patient. The nurses consider that the physician's comment "You do not

have a doctor of medicine degree to do this!" is not a strong enough argument to prevent them from giving their opinion in future. However, it remains unclear why nurses seldom participate at professional meetings and why nurses are not concerned by this fact.

As in the first vignette, not all respondents expressed their own opinions and potential reactions to the second vignette. All respondents considered that the nurse acted correctly by giving priority to the well-being of the patient, whereas two thirds of the respondents would not take action, considering that only the physician is competent to decide on priorities.

In the third vignette, describing the case of a midwife, nurses agreed that a number of similar cases occurred in practice, but the public has no knowledge of them. Although the actions of relevant bodies (hospital management, Nurses' Union, etc.) were unethical, only after she had been dismissed from her job, the midwife filed an application to the European Court of Human Rights. The respondents expressed the opinion that this is the only way for the midwife to exercise her rights, which is supported by high level of agreement for this item. The respondents also considered that if midwife had a written record of her right to invoke conscientious objection in performing abortions she would have been exempted from the case.

During their professional careers, nurses rarely faced a situation where they had to carry out a procedure that was contrary to their convictions, as confirmed by low level of agreement for this item. The respondents expressed indifferent attitude to items "Do you consider that religious and/or moral convictions should have priority over professional tasks of nurses" and "Do you consider that, in a way, conscientious objection exposes a person to stigmatization or discrimination?" It remains unclear whether this arises from nurses' lack of knowledge on their rights or they simply consider that such tasks are not a part of their work.

When asked to express their own opinion on the vignette and possible reactions, 66 respondents (total number of answers) considered that the midwife had the right to refuse to participate in abortion procedure. Out of the total number of 60 respondents which gave the answer how they would act in this situation, 15% answered that they would participate in the procedure although it was contrary to their convictions.

Overall, although all the participants expressed a high level of self-respect, nurses with bachelor's or master's degree had a higher level of self-respect compared to nurses with secondary education. This is an important indicator of the importance of acquiring higher level of education and advancing knowledge, skills and competences, which raises the level of recognition of nurses both in healthcare institutions and the society as a whole. Other studies have confirmed that the education of nurses in important, as higher proportion of nursing staff with bachelor's degree was directly related to lower mortality rates after routine surgical procedures [11]. Furthermore, based on the data on 422,730 surgical patients from 300 hospitals in 9 European countries and the data on nurses and their education, gathered from 26,516 nurses, each 10% increase in the number of nurses with bachelor's degree was directly related to 7% decrease in mortality risk [11].

Our study showed a low correlation between the level of self-respect and the level of agreement for the items: "The primary task of a nurse is to carry out the physician's orders",

"Nurse has the same level of authority as other team members" and "Nurses are personally accountable for their work, responsible for their actions and omissions, regardless of advice or instructions from other experts". This indicates that nurses with higher level of self-respect will not see themselves as mere follower of physician's orders, but will feel like an equal member of medical team, deeply aware of fundamental principles of the nursing profession. This confirms that self-respect greatly affects self-confidence.

A study conducted in 14 Slovenian hospitals, covering physicians and nurses, has shown that the submission of nurses can be explained by market culture, level of personal involvement, and the level of education [12]. Both groups of respondents estimated that they had a low level of personal involvement in their organizations and indicated insufficient involvement in work teams, whereas nurses also felt that they were subordinated to the physicians, more so than was the opinion of physicians [12].

Other studies have shown that the two professions have different perceptions of the physician-nurse relationship [13]. Physicians rated relationships significantly better than did nurses, whereas 55% of nurses said that physician's behaviour significantly impacted healthcare quality. In addition, this study indicated that younger, less experienced nurses were more likely to report being affected by negative physician behaviour than older nurses or nurses with more experience [13].

Our study had some important limitations. The first limitation is related to the biases inherent to survey studies. However, the response rate was high, indicating that the sample we used in the study is representative of the nurses and the USHC There was a possibility that the nurses gave socially acceptable answers. The sincerity of answers could have also been affected by fear of revealing identity, disagreement with the aim of the study, or by overburdened at work or participation in other studies. Some nurses, regardless of their level of education, after the first visual review of the questionnaire refused to participate in the research as they considered it to be overly direct and aimed against the physicians, fearing that their identities might be revealed. After we had eliminated one demographic indicator, related to job position, most nurses agreed to participate. This gave rise to doubts that, in spite of professional development opportunities, the nurses have today, they still prioritise the diagnostic and curative role of medicine, placing nursing at the level of service and support. The results of this study may not give an accurate picture of daily work of nurses at USHC Split, but refer to a wider and more current issue in nursing. Future studies on this topic should increase the sample diversity and the number of respondents and include the physicians in the research. The future study should cover not only the healthcare professionals working at the hospitals, but also healthcare professionals in other medical institutions, to construct a comprehensive picture on relationships between physicians and nurses.

Cooperation between nurses and physicians is of strategic importance for quality health care of patients and creating positive working environment for both groups of healthcare professionals. Cooperation should not only be created at a personal level, but at a professional level as well, with corresponding realisation of goals of medical care. Ultimately, what is most important is to ensure quality treatment of patients and create self-awareness of positive and negative emotions: to work on better and healthier communication;

allow introduction of new knowledge and skills; ensure better flow of information between employees; learn how to react in certain situations and stop treating each other as enemies. Nurses have the toughest and most rewarding job in the world, and yet they seem to be so disconnected as colleagues. There will never be enough time, staff or equipment, and these are the factors we cannot control. What we can control is our behaviour and the final – to make someone's day better [14].

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ORCID

Ana Marušić https://orcid.org/0000-0001-6272-0917

References

1. Licul R. Sestrinstvo – ženska profesija? JAHR. 2014;5:189-90.
2. Silva MC, Rothbart D. An analysis of changing trends in philosophies of science on nursing theory development and testing. Adv Nurs Sci. 1984;6:1-13.
3. Kalauz S. Bioetika u sestrinstvu. Medicina Fluminensis. 2008;44:129-34.
4. Matulić T. Identitet, profesija i etika sestrinstva. Bogoslovska smotra. 2007;77: 727-44.
5. Zakon o zdravstvenoj zaštiti. Donositelj: Zastupnički dom Sabora Republike Hrvatske. Narodne novine br. 75/1993. 1534.
6. Zakon o sestrinstvu. Donositelj: Hrvatski sabor. Narodne novine br. 121/2003. 1710.
7. Hrvatska komora medicinskih sestara. Statut Hrvatske komore medicinskih sestara. Zagreb: Komora; 2006. Klasa: 032-01/06-01/02.
8. Ružić I, Petrak O. Pitanje autoriteta u sestrinstvu. Sestrinski glasnik. 2013;18:119-26.
9. Rosenberg, M. Society and the adolescent self-image. Princeton, NJ: Princeton University Press. 1965.

10. Matas N. Očekivanja medicinskih sestara/tehničara tijekom studiranja u odnosu na status nakon zapošljavanja. Sveučilište u Splitu: Sveučilišni odjel zdravstvenih studija, 2015. Diplomski rad. Dostupno na: https://zir.nsk.hr/islandora/object/ozs:58

11. Aiken HL, Sloane MD, Kinnunen J, Kozka M, Bruyneel L, Van den Heede K, et al. Nurse staffing and education and hospital mortality in nine European countries: a retrospective observational study. Lancet. 2014;383:1824-30.

12. Skela Savić B, Pagon M. Relationship between nurses and physicians in terms of organizational culture: Who is responsible for subordination of nurses? CroatMed J. 2008;5:334-43.

13. Siedlecki SL, Hixson ED. Relationships between nurses and physicians matter. Online J Issues Nurs. 2015;20:6.

14. Jurić M. Međuljudski odnosi u sestrinskoj profesiji. Sveučilište Sjever: Odjel za sestrinstvo, 2018. Završni rad.