

Reasons and Potential Solution Approaches for the Shortage of Nursing Staff in German Hospitals

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The aim of this scientific paper was to find out the reasons for the shortage of nursing staff in German hospitals and to provide potential solution approaches for this shortage. Over the last years, the shortage of nursing staff has become a more and more important topic in the news: Not only due to the increasing amount of missing nurses, but also due to the ageing population in Germany, which leads to an increasing amount of patients in German hospitals. To reach this aim two surveys were done, of which one was for nursing staff only and the other one was for people from all occupational groups with the intention of creating comparative values. The surveys were done from March to April 2019 and were analysed afterwards. After a detailed analysis of the survey results, it can be summarized that the reasons for the shortage of nursing staff in German hospitals are very diverse: Starting with a weak salary, improvable working conditions – for example the shift work and the high amount of physical and psychological stress -, a difficult compatibility of family and job as well as the unattractive image of the job as a nurse in the society. It can be concluded that the solution for the shortage of nursing staff is very difficult. The future will show whether the governmental support will help to make the job as a nurse more attractive – not only for the current nurses, but also for potential future nurses.

Keywords: Nursing staff, Shortage, Germany, Reasons, Solution Approaches, Surveys

JEL Classification: M50

1. Introduction

The ageing population has led to increasing amounts of patients over the last decades. Nevertheless, hospitals continuously decrease the amount of nursing staff with the aim of decreasing costs and thereby increasing profits. The German Institute for Applied Nursing-Research DIP (Deutsches Institut für angewandte Pflegeforschung) found out that from 1995 to 2005 German hospitals reduced 13,5% of their nursing staff, even though the number of patients and work requirements increased steadily. Nevertheless, the reduction of

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nursing staff by German hospitals has not only taken place in order to increase their profits, but also because of political reforms, which forced them to save expenses (Neue Ruhr Zeitung, 2007).

According to Verdi, the German labor union, there is an approximate deficiency of 162,000 nurses in German hospitals (Ärztezeitung, 2017). This eventuates in whole wards which are being closed, intensive care beds being blocked, and operations being cancelled due to shortages of nursing staff (Gesundheitsstadt Berlin, 2018).

In addition to that, "several studies have shown that there is a direct relationship of the personnel composition of emergency rooms and the quality of the treatments up to the mortality of patients" (Ärztblatt, 2019a).

The nursing staff working in German hospitals has to compensate the vacant, but what about the ones, who already work as a nurse in a German hospital? Does the shortage of nursing staff influence their everyday work? Nowadays twenty percent of the younger nursing staff and ten percent of the older nursing staff in German hospitals think about quitting their job multiple times per month (Statista, 2019a), which can be considered a reaction to the working conditions. Moreover, nursing staff is on score number six of the ten highest numbers of incapacitation for work due to Burnout (Statista, 2019b), which also displays the high pressure that nurses are set under each day of work.

1.1. Summary Statement:

1. What is already known about this topic?

- The shortage of nursing staff is an important problem and a critical challenge in Germany's health care system.
- Due to the COVID-19 pandemic the topic of shortage of nursing staff gained a lot of attention and people understood how important well educated and enough nursing staff is in a good health care system.

2. Research Findings / Key New Information

- Most importantly, this research paper points out the reasons for the shortage of nursing staff and helps to understand why so many people do not want to become a nurse and why so many nurses give up their jobs.
- In addition to that, solution approaches are created which are based on the previous findings of the reasons for the shortage of nursing staff.

3. The Implications of This Paper

- The research findings of this paper can help to create solution approaches which may decrease the shortage of nursing staff
- Furthermore, this research paper provides an understanding of the various reasons for the shortage of nursing staff and can help to prevent a further deterioration of this problem.

Preliminary Note

Please note that, due to simplicity, only the male gender-version has been used in this scientific paper. The chosen form applies for both sexes without any value judgment.

2. Literature Review

Jennifer Claßen and Britta Neumann state in their book "Pflegerkräftemangel in deutschen Krankenhäusern. Auswirkungen auf die Patientenversorgung." ("*Shortage of Nursing Staff in German hospitals. Effects on the patient care.*") that the shortage of nursing staff is a great challenge for hospitals and that only the ones, which are able to attract and retain competent skilled personnel, will be future proof. Moreover, they summarize that the currently existing shortage of nursing staff will become even worse, with a forecasted shortage of nursing staff of more than 400,000 nurses in the hospitals and more than 66,000 in the ambulant care. At the same time, the demographic, social, societal and healthcare changes increase the amount of elderly, and therefore care-dependent people, which requires even more nursing staff to care for them. (Claßen and Neumann, 2015, p.3)

The demographical development with an "increasing life expectancy leading to an increasing amount of old people with a demand for care and decreasing birth rates leading to less working people" is also described in the article "Important Trends and Developments influencing the Nursing Care" (Thor and Siegfried, 2021).

Why does the shortage of nursing staff in German hospitals exist? The book "Pfleger-Report 2019" ("Nursing-Report 2019") (Jacobs et al., 2019) points out the results of an employee-survey for which more than 35,000 employees with all types of jobs had been interviewed. The results show that the overall rating of

the work situation from nursing staff is considered worse than the overall average of all occupational groups: Emotional, physical and psychological stress as well as shift work and dissatisfaction with the income level are the main reasons for the discontent of nursing staff with their own job. The only areas, where nursing staff rates their job higher than the overall average of all occupational groups are the meaningfulness of one's own activity as well as, in part, the development and further training opportunities and also the job security (Jacobs et al., 2019, p. 51-52).

3. Method, Design and Aim

For both surveys a quantitative research method was used. The aim of using a quantitative research method was to gain numerical information about the topic of this master thesis and to being able to compare these numbers with the results of the second survey, with the purpose of understanding differences and problems in the best way possible. The survey, which addresses the nurses, was developed first. After the creation of the survey, a test phase was used to detect potential misunderstandings or indistinctly questions.

3.1. Sample / Participants

In order to gain a confidence level of 95% with a margin of error of 3%, while having a total population of 1,155,000 nurses in German hospitals, the survey sample size has to be at least 1,067 survey attendees for the survey with the nursing staff. Regarding the second survey for the reference group, it can be concluded that - when taking into account a confidence level of 95% with a margin of error of 3% (like it was done for the first survey) – the sample size for the second survey has to be 1,068 survey attendees minimum.

The surveys were closed on April 10th, 2019 after the required sample size was reached for both surveys. Survey number one has a total amount of survey attendees of 1,073 nurses. The second survey has 1,075 survey participants in total.

3.2. Data Collection

In order to examine reasons for the shortage of nursing staff in German hospitals, two surveys with more than 2,000 participants were done: The first survey was for nursing staff only and included questions about the following topics: Gender of the survey participants, age of the survey participants, duration in this job, department of the hospital (which the nurse is working in), negative aspects about the job as a nurse, perceived stress, long-term sickness, reason for long-term sickness (if applicable), long-term sickness due to the job (if applicable), long-term perspective of the job, reasons for a missing long-term perspective of the job (if applicable), influence of the shortage of nursing staff on everyday work, consequences of the shortage of nursing staff, average amount of patients to care for during the day/night and the reasons why young people do not want to become a nurse.

3.3. Ethical Considerations

This research has the purpose of providing a research method, which avoids risks. In order to reach this goal, several potential risk factors have been identified and will be described in the following, as well as the method to avoid them.

First of all, the research participants might be stressed by the research. This risk has been reduced by offering surveys that the participant can take place in via an online tool, so that it is 100% anonymously and he does not have to be afraid of any consequences due to his responses. Secondly, no detailed information on the workplace have been asked, since just the department where a person is working in is asked neither the name of the hospital or even the city, where the survey attendee is working in. This maximises the anonymity and prevents that the survey participants' employer knows what his employee answered. The high anonymity of this research ensures that the participants do not have to fear any consequences of their participation, which allows them to answer honestly.

4. Data Analysis

The second survey was a survey with people having different types of jobs in order to create reference values, which can be compared with the survey results of the nursing staff. It included questions about the following topics: Gender of the participants, age of the participants, duration in this job, perceived stress, long-term sickness, reason for long-term sickness (if applicable), long-term sickness due to the job (if applicable) and about the long-term perspective of the job.

4.1. Results

The surveys which were done show that the reasons for the shortage of nursing staff are very diverse: First of all, most of the nurses perceive the same aspects as negative: The reasons for this perception and also the aspects, which are considered negatively, are the low salary, the missing compatibility of family and the job as a nurse, the unsatisfying Work-Life-Balance and the psychological and physiological stress.

At the same time, these aspects are also the ones which lead to a missing long-term perspective of this job because only 15.64% of the nursing staff can imagine doing this job until their retirement, while 84.36% do not believe this or is unsure about it. Compared to the reference group, where 49.91% can imagine doing their job until they retire and only 50.09% do not believe this or are unsure about it, it shows that, even if people decide to become a nurse, the probability that they will do this job for a long time, is quite low (figure 1).

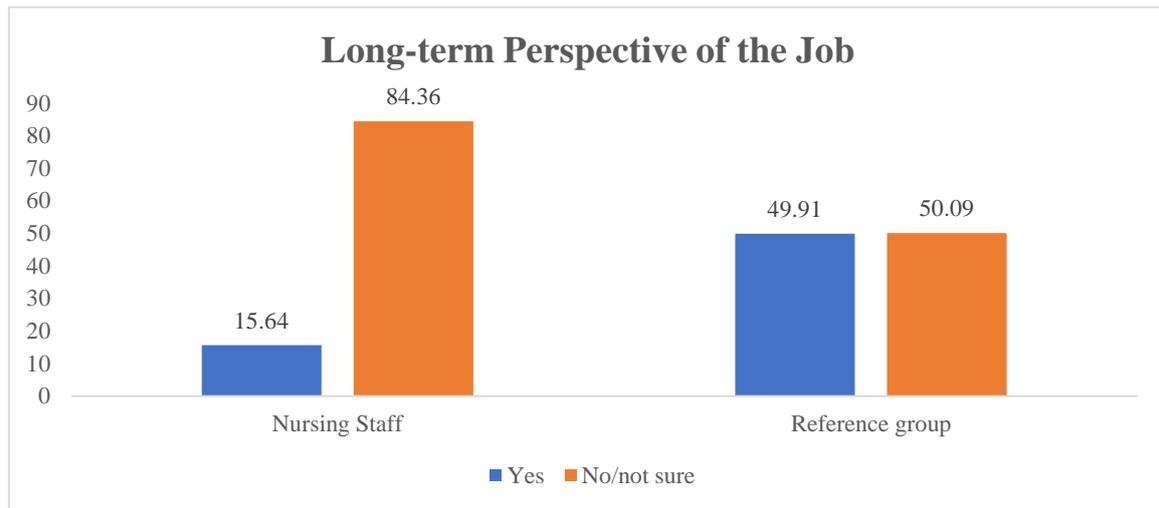


Figure 1. Long-term Perspective of the Job

When it comes to the question, why nurses think that young people perceive the job as a nurse as not interesting or attractive, the above-mentioned aspects also play a major role. The low salary, the missing compatibility of family and job and the unsatisfying Work-Life-Balance are considered the most important reasons and brought to completion by the shift work and the uninteresting perception of the job itself because people only think about hygienic or caring aspects regarding the job as a nurse, but do not know about the many medical aspects of the job.

The high amount of psychological and physiological stress is represented by two aspects: On the one hand, the perceived stress and on the other hand, the question of long-term sickness. The participants were asked to rate their stress level at work on a scale of zero to ten with zero being absolutely no stress and ten being a very high amount of stress. First of all, it can be stated that nurses have a much higher amount of perceived stress, compared to the reference group, which displays the psychological stress for nurses. Only 8.52% of the nurses rate their stress as low with scores from zero to four, while 19.74% of the reference group considers their stress level at work low. In contrast to this, 52.62% of the nurses perceive their stress level as very high with scores from eight to ten, while only 36.51% of the reference group rates their stress as very high (figure 2).

When asked if they had been long-term sick in the past, the amount of nurse answering with "yes" is also significantly higher (39.14%) than the amount of the reference group (31.38%). This had been due to the job by 45.97% of the nursing staff, while only 39.86% of the reference group was long-term sick due to the job (table 3). Moreover, the long-term sickness of nurses is also caused more often by physiological problems and sickness (49.08%) than the long-term sickness of the reference group (39.86%).

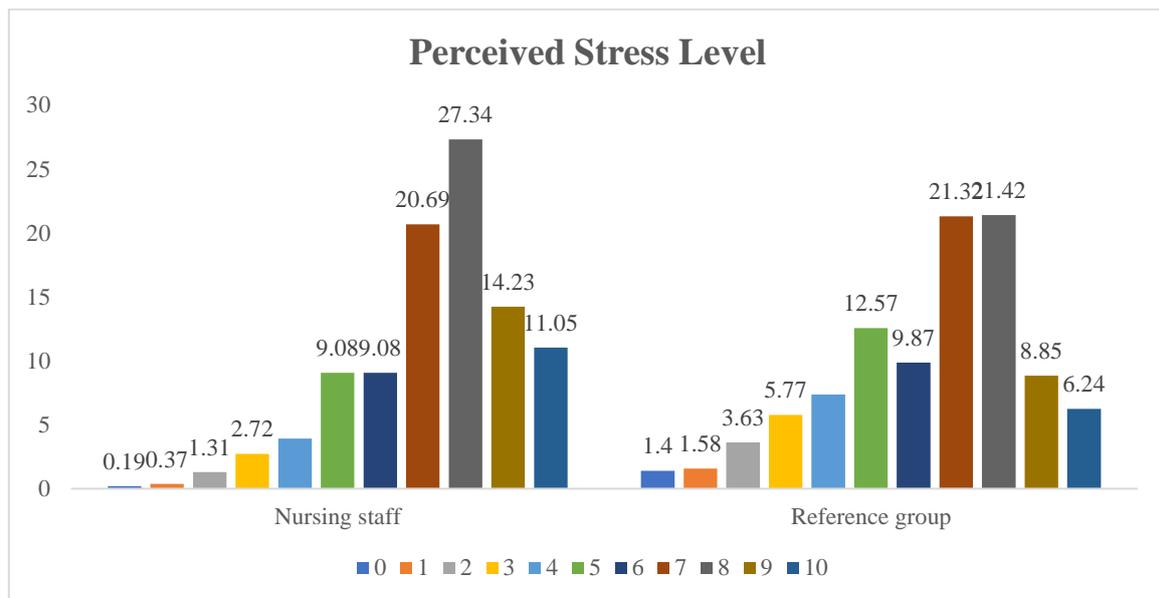


Figure 2. Perceived Stress Level

In addition to the above-mentioned aspects like the low salary, the unsatisfying Work-Life-Balance, the missing compatibility of family and job and the physiological and psychological stress, there are also several other reasons which often lead to an overall dissatisfaction of the nursing staff: First of all, 98.04% of the participating nurse state that their everyday work is influenced by the shortage of nursing staff and 65.21% have to care for more than ten patients during the day, while this percentage is even higher with 74.12% during the nights. Furthermore, the shortage leads to several consequences, which influence the everyday work negatively: The five most important consequences are that the nursing staff often cannot care enough for their patients, is frequently called in their free time to step in, has to work extra hours to compensate the shortage repeatedly, their everyday work is often characterised by stress and many of them feel over challenged due to the high workload.

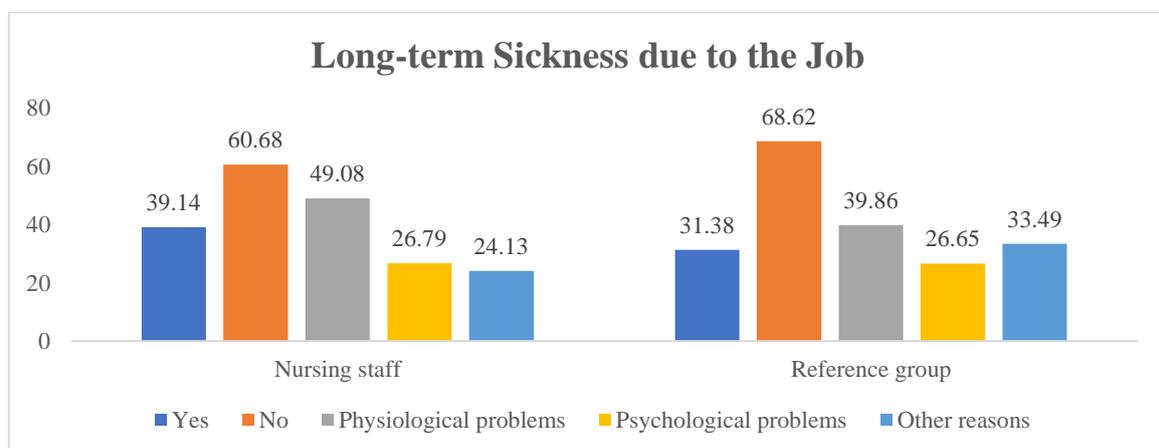


Figure 3. Long-term Sickness due to the Job

5. Discussion

Several studies confirm the results of this scientific paper survey: A survey, which was done in 2010 and had nearly 4,000 participating nurses supports the findings of this scientific paper survey because criticized aspects of the participants regarding their job were the salary, the compatibility of family and job, the shortage of nursing staff during the shifts and as a result not enough time for the patients and the recognition of the work from the hospital management and the doctors (Ärzteblatt, 2011). Another survey also supports these results, stating that the main reasons for the shortage of nursing staff lie in the low salary, the high amounts of stress and missing career opportunities (Tagesspiegel, 2018).

According to the auditing, tax and management consultancy PricewaterhouseCoopers, reasons for the shortage include a high physiological and psychological amount of stress, an unsatisfying Work-Life-Balance,

a missing recognition of the job in the society and an overall labour unrest (PricewaterhouseCoopers, 2016). As said by PricewaterhouseCoopers, other reasons are inefficiencies, a high bureaucratic workload, traditional occupational images which make the job as a nurse unattractive for men, feminisation and the question of the adequacy and sufficiency of the exercise of occupation (PricewaterhouseCoopers, 2016).

5.1. Solution Approaches

Even though some of the criticized aspects are difficult to change - for example the psychological stress or a lack of career opportunities -, there are many aspects which can be changed easily.

Some of them can be influenced directly by the hospital - for example the salary, some can be influenced by the hospitals in a rather indirect way - for example the physiological stress, which can be changed by technical and mechanical aids. Other problems are more difficult to solve because they are more hardly to influence - for example the unsatisfying Work-Life-Balance. But even for these aspects, there are many opportunities which can be implemented to improve the working conditions and intrinsic as well as extrinsic motivational factors, with the overall aim to increase job satisfaction. In addition to that, hospitals should try to ease their nurses' work as much as possible - not only by introducing mechanical and technical aids, but also by decreasing the bureaucratic workload and increasing efficiencies as much as possible.

Regarding the solution approaches, it can be summarized that hospitals should concentrate on the aspects which are criticized the most: The low salary, the difficult compatibility of family and job and the dissatisfying Work-Life-Balance. If hospital managements would increase the salary, ease the compatibility of family and job and improve the Work-Life-Balance by adapting difficult changes, it can be assumed that the job satisfaction of nurses would increase significantly and that the job would become more attractive to people, who consider becoming a nurse.

When considering that only a small percentage (15.64%) of the nurses think that they will work in their job until their retirement, it is also very important to improve facets influencing the long-term perspective of the job. Examples for this are the high stress level and the physiological exhaustion, which can both be improved by recruiting more nurses and by introducing mechanical aids and technical support. Other aspects, which influence the long-term perspective, for example the low salary or the difficult compatibility of family and job, should also be improved.

6. Conclusion

Summing up, there are many reasons for the shortage of nursing staff in German hospitals. They lie in aspects which could be changed easily, for example the salary, aspects which are more difficult to change, for example the physiological stress and aspects which are very hard to change, for example the difficult compatibility of family and the job as a nurse or the psychological stress.

With the intention of creating solution approaches, which do not only solve the shortage of nursing staff in the present, but also prevent a shortage of nursing staff in the future, it is essential to consider the attractiveness of the job as a nurse for people who are looking for a new job. In order to make the job as a nurse more attractive, increasing the salary for nurses is the most important aspect. This is not only the most criticised aspect and a very important aspect regarding the missing long-term perspective but was also chosen as the most important opportunity to make the job more attractive for people, who are looking for a job. Furthermore, employee benefits, more appreciation and recognition in the society and more right of co-determination regarding the crew scheduling are very important improvement opportunities for this approach.

According to the auditing, tax and management consultancy PricewaterhouseCoopers, the occupational image and self-concept needs to change from a burden bearer towards a mind and soul carer, operative procedures and processes need to become more efficient and the job satisfaction needs to become more important for the hospitals (PricewaterhouseCoopers, 2016).

On a final note, the job as a nurse needs an upward re-evaluation and career opportunities need to be improved, in order to increase job satisfaction and the long-term perspective for nurses and to also make the job more interesting for people, who consider a new beginning regarding their job.

The German Federal Ministry of Health realized the importance and the urgency of the shortage of nursing staff in German hospitals and implemented several changes: First of all, they improved the hospitals' financial situation by introducing various financial supports for hospitals, which make it easier for hospitals to hire nurses and to train apprentices. Additionally, minimum levels for nursing staff were introduced for some wards and will be introduced for more wards in the future.

Moreover, medical insurance companies were forced to pay more than 70 billion euro per year for workplace health promotion in hospitals and retirement homes and methods to improve the compatibility of family and job were also introduced (Bundesministerium für Gesundheit, 2019).

Nevertheless, it is questionable and cannot be foreseen, how the shortage of nursing staff will develop in the future and if the actions taken by the German Federal Ministry of Health are effective to reduce the shortage of nursing staff.

6.1. Forecast

After introducing different new regulations, supporting mechanisms and laws to improve the shortage of nursing staff in German hospitals, it can be questioned if the results of this scientific paper will still be valid in the future. It can be assumed that the shortage of nursing staff will improve due to the changes implemented by the German Federal Ministry of Health and that therefore criticised aspects, as well as stress levels, long-term sickness and the long-term perspective of this job might change. As previously described, the German Federal Ministry of Health announced that they will introduce further minimum levels and it can be presumed that - if the previously introduced changes do not lead to a sufficient improvement of the situation of nursing staff, there will be further changes to improve this situation.

Besides these consequences of the changes, it is questionable if the introduced changes will improve the working conditions of the nurses in German hospitals noticeable in the near future, or if they will have the feeling that nothing has changed.

Especially factors like the financial support for apprentices are methods, of which nurses might not recognise the influence directly, but rather in several years, when hospitals find new nurses more easily and the wards are better staffed.

6.2. Data Availability Statement

For both surveys, the sample size was calculated on the basis of the following components: For the first survey, the population of all nursing staff in Germany was 1,155,000 (Statistisches Bundesamt, 2019), the second survey had a population of 44,269,000 (Statista, 2019c). For both surveys, a confidence level of 95% and a margin of error of 3% was chosen. The confidence level "indicates the probability, with which the estimation of the location of a statistical parameter in a sample survey is also true for the population (...). In surveys, confidence levels of 90/95/99% are frequently used." (Statista, 2019d) In greater detail, the confidence level is the "statistical likelihood that a random variable lies within the confidence interval of an estimate" (Business Dictionary, 2019a). In addition to that, a margin of error is "the maximum deviation of the sample results from the real values. If there is a large margin of error in a survey, there will be less confidence that it matches the "true figure for the total population" (Statista, 2019e).

More precisely it is an "analytical technique that accounts for the number of acceptable errors in an experiment" (Business Dictionary, 2019b) and "a smaller margin of error indicates trustworthy results and a larger margin of error means the results are not considered as accurate" (Business Dictionary, 2019b). By using these components for the calculation of the necessary sample size, the required survey sample for the first survey has to be at least 1,067 survey attendees and for the second survey, 1,068 participants were required. The first survey, where only nursing staff could participate, had 1,073 participants, while the second survey, which was answered by people with all different kinds of jobs, had 1,075 participants in total. Both surveys were distributed only via different social networks and had been online for four weeks each. The survey for the nursing staff included 17 questions, while the survey for the reference group only included 8 questions.

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Appendix 1. Survey Results

Question 1: Gender of the Survey Participants

Gender	Nursing Staff	Reference Group
Male	11.02%	30.14%
Female	88.98%	69.86%

Question 2: Age of the Survey Participants

Age	Nursing Staff	Reference Group
15-24 years	26.77%	16.37%
25-34 years	36.19%	29.49%
35-44 years	17.54%	25.40%
45-54 years	14.37%	21.02%
55-64 years	5.04%	6.70%
65 years or older	0.09%	1.02%

Question 3: Duration in this Job

Duration in this Job	Nurses	Reference Group
0-10 years	56.34%	48.09%
11-20 years	21.83%	26.75%
21-30 years	12.69%	15.19%
31-40 years	8.21%	8.01%
41-50 years	0.93%	1.77%
More than 50 years	0.00%	0.19%

Question 4: Department of the Hospital

Department of the Hospital	Percentage of Nurses Working There
Emergency Room	6.57%
Normal ward	45.24%
Intensive care unit	15.43%
Surgery	1.43%
Functional diagnostics	1.24%
Palliative care	1.71%
Paediatrics	3.05%
Laboratory	0.1%
Anaesthesia	2.1%
Psychiatric wards	6.57%
Monitoring wards	7.24%
Other	9.33%

Question 5: Negative Aspects about the Job as a Nurse

Criticised Aspects	Score Voted by the Nurses
Low Salary	3.26
Difficult compatibility of family/job	3.71
Unsatisfying Work-Life-Balance	4.08
Psychologically exhausting	4.70
Physiologically exhausting	4.95
Not enough appreciation in the everyday work	5.24
Not enough appreciation in the society	5.83
Improvable organisational climate	7.36
Lack of career opportunities	7.64
Violence/sexual assault	8.23

Question 6: Perceived Stress

Stress Level	Nurses	Reference Group
0	0.19%	1.40%
1	0.37%	1.58%
2	1.31%	3.63%
3	2.72%	5.77%
4	3.93%	7.36%

5	9.08%	12.57%
6	9.08%	9.87%
7	20.69%	21.32%
8	27.34%	21.42%
9	14.23%	8.85%
10	11.05%	6.24%

Question 7: Long-Term Sickness

Long-Term Sickness	Nurses	Reference Group
Yes	39.14%	31.38%
No	60.68%	68.62%

Question 8: Reasons for Long-Term Sickness

Reasons for Long-Term Sickness	Nurses	Reference Group
Psychological	26.79%	26.65%
Physiological	49.08%	39.86%
Other reasons	24.13%	33.49%

Question 9: Long-Term Sickness Due to the Job

Long-Term Sickness Due to the Job	Nurses	Reference Group
Yes	45.97%	39.86%
No	39.52%	44.59%
Not sure	14.52%	15.54%

Question 10: Long-Term Perspective of the Job

Long-Term Perspective of the Job	Nurses	Reference Group
Yes	15.64%	49.91%
No	48.03%	25.42%
Not sure	36.33%	24.67%

Question 11: Reasons for Missing Long-Term Perspective of the Job

Reasons for Missing Long-Term Perspective of the Job	Percentage Voted by the Nurses
Physiologically exhausting	68.3%
Too low salary	54.1%
Difficult compatibility of family/job	52.5%
Psychologically exhausting	46.8%
Unsatisfying Work-Life-Balance	41.4%
Career planned in medical sector	24.5%
Career planned in other field	9.4%
Other reasons	8.5%

Question 12: Influence of the Shortage of Nursing Staff on Everyday Work

Influence of the Shortage of Nursing Staff on Everyday Work	Percentage Voted by the Nurses
Yes	98.04%
No	1.96%

Question 13: Consequences of the Shortage of Nursing Staff

Consequences of the Shortage of Nursing Staff	Percentage Voted by the Nurses
Too high workload to care enough for patients	89.50%
Called in free time to step in	67.70%
Working extra hours to compensate shortage	59.80%
Everyday work characterised by stress	58.00%
Less fun at work due to shortage	42.50%
I made mistakes due to much stress	38.20%
Other reasons	6.80%

Question 14: Average Amount of Patients to Care for During the Day

Amount of Patients During the Day	Percentage Voted by the Nurses
1-5 patients	20.38%
6-10 patients	14.41%
11-15 patients	27.39%
16-20 patients	16.97%
21-25 patients	8.63%
26-30 patients	5.78%
More than 30 patients	6.45%

Question 15: Average Amount of Patients to Care for During the Night

Amount of Patients During the Night	Percentage Voted by the Nurses
1-5 patients	20.02%
6-10 patients	5.86%
11-15 patients	7.03%
16-20 patients	12.30%
21-25 patients	12.01%
26-30 patients	18.85%
More than 30 patients	23.93%

Question 16: Reasons why Young People do not want to Become a Nurse

Reasons why Young People do not want to Become a Nurse	Score Voted by the Nurses
Low salary	3.02
Shift work	3.73
Difficult compatibility of family/job	3.78
Unsatisfying Work-Life-Balance	4.58
The job as a nurse is perceived as not interesting	5.07
Psychologically exhausting	5.63
Physiologically exhausting	5.87
Not enough appreciation in the society	6.92
Not enough appreciation in the everyday work	7.15
Violence/sexual assault	9.26

Question 17: Room for Improvement to Make the Job more Attractive for Young People

Room for Improvement to Make the Job more Attractive for Young People	Score Voted by the Nurses
Higher salary	1.95
Employee benefits	3.66
More appreciation in the society	4.27
More right of co-determination regarding crew scheduling	5.08
More appreciation of the hospital management/doctors	5.45
Technical aids in the everyday work	5.66
More career opportunities	6.02
Academisation of the nursing care	7.53
Recruiting of foreign employees	7.62
More diversified everyday work	7.76

