Nurses Workplace Perceptions in Germany - Job Satisfaction and Self-Intended Retention to the Nursing Profession

Domenic Sommer * , Sebastian Wilhelm , Florian Wahl

Posted Date: 22 December 2023

doi: 10.20944/preprints202312.1754.v1

Keywords: nursing, healthcare jobs, intention to leave, job satisfaction, employee retention

Article

Nurses Workplace Perceptions in Southern Germany—Job Satisfaction and Self-Intended Retention towards Nursing

Domenic Sommer *, Sebastian Wilhelm and Florian Wahl

Deggendorf Institute of Technology; Technology Campus Grafenau, 94481 Grafenau, Germany; sebastian.wilhelm@th-deg.de (S.W.); florian.wahl@th-deg.de (F.W.)

* Correspondence: domenic.sommer@th-deg.de; Tel.: +49-8552-975620-64

Abstract: Our cross-sectional study, conducted from October 2022 to January 2023, aims to assess post-COVID job satisfaction, crucial work dimensions, and self-reported factors influencing nursing retention. We surveyed 2,572 nurses in different working fields in Bavaria, Germany, with an online survey. We employed a quantitative analysis, including a multivariable regression, to assess key influence factors on nursing retention. In addition, we evaluated open-ended questions via a template analysis to use in a joint display. In the status quo, 43.2 % of nurses are not committed to staying in the profession over the next 12 months. 66.7 % of our surveyed nurses are dissatisfied with the (i) time for direct patient care. Sources of dissatisfaction above 50 % include (ii) service organization, (iii) documentation, (iv) co-determination, and (v) payment. The qualitative data underline necessary improvements in these areas. Regarding retention factors, we identified nurses with (i) older age, (ii) living alone, (iii) not working in elder care, (iv) satisfactory working hours, (v) satisfactory career choice, (vi) career opportunities, (vii) satisfactory payment, and (viii) adequate working and rest times are more likely to remain in the profession. Conversely, dissatisfaction in (ix) supporting people makes nurses more likely to leave their profession and shows emotional constraints. We uncovered a dichotomy where nurses have strong empathy for their profession but yearn for improvements due to unmet expectations. Policy implications should include measures specially for younger nurses and those in elderly care. Nevertheless, there is a need for further research because our research is limited by potential bias from convenience sampling, and digitalization will soon show up as a potential solution to improve, e.g., documentation and enhanced time for direct patient time.

Keywords: nursing; healthcare jobs; intention to leave; job satisfaction; employee retention

1. Introduction

1.1. Emerging Challenges in Nursing

Nurse satisfaction and retention are pivotal in healthcare globally. Exacerbated by pandemics, staff shortages, and high attrition rates underscore the need for robust nursing workforces [1–3]. In Europe, the aging population, mult-morbidity and decreasing informal caregivers have increased the burden and reliance on professional nursing [4–7] Workloads and stress, particularly in Western Europe, have been escalating since COVID-19 [8]. 18.4 % of European nurses consider leaving nursing several times a month, indicating frequent quitting thoughts, highlighting the dire need for improved working conditions [9,10].

In Germany, these issues are pronounced, with one in five citizens being over 65 years old [3,11,12]. The pandemic has further highlighted the importance of a satisfied and retained nursing staff to manage growing healthcare demands [12–14]. German nurses are increasingly resigning, with 40 % of nurses considering leaving monthly [15]. In addition, by 2023, Germany is predicted to face a shortfall of up to 500,000 nurses [9,16]. The German nursing sector sees high turnover rates, with nurses typically remaining in general nursing for six and in elderly care for ten years. High turnover rates have

 doi:10.20944/preprints202312.1754.v1

economic [17] impacts and affect the quality and continuity of care, highlighting the critical need for strategies to retain nursing staff and ensure an employee-friendly health service [18–24].

1.2. Lack of Transferable Research

Section 2 in the literature review identifies a research gap in nurse satisfaction and retention globally [1,25–30]. Contradictory findings and confounders in existing studies are noted and the variation in healthcare and working cultures necessitates national studies, as there is limited transferability across different systems [25,31,32]

There is a lack of comprehensive national data regarding nurses' job satisfaction and self-reported retention [3,12]. Small sample sizes limit national studies such as the NEXT-Study or are outdated, failing to reflect modern nursing practices [24,31,32].

In conclusion, there is a need for more comprehensive, holistic research to develop evidence-based interventions addressing nurses' satisfaction and retention.

1.3. Contribution of our Study

Despite the challenges in nursing, such as rising demand and outdated national retention data, our study aims to fill the research gap in understanding nursing conditions from the nurses' perspective in Germany. Our research contributes in the following ways:

(i) We present a national multifaceted understanding of the current job satisfaction of nurses and the factors that influence their self-stated nursing retention.
(ii) We identify with our Bavarian-wide study important values and improvements regarding nurses' working conditions, enabling the evidence-based development of measures to enhance current nursing conditions.

2. Related Work

Job satisfaction, crucial in sociology, economics, and psychology, is defined as an emotional (inter-)personal, subjective state resulting from job appraisal and multidimensional factors, encompassing a spectrum from dissatisfaction to satisfaction [22,33–36]. *Employee retention* is linked to job satisfaction and contains to prevent turnover [10,35,37]

2.1. International Nursing Retention

Nurses are the largest professional group in healthcare, but with improvable working satisfaction and retention [26]. Studies from various countries analyze job satisfaction and focus on retention factors [1, 20,27–30,38–43]. As shown in Table2.1, retention factors include *personal attributes* (health, education, marital status, age), *job characteristics* (supportive leadership, autonomy, stress, professional growth), and organizational context (wages, relationships, working environment, employer location). Notably, organizational context and job characteristics are more impactful than individual factors [28,44].

 doi:10.20944/preprints202312.1754.v1

Table 1. International Evidence on Influence Factors to Nurses Satisfaction and Retention.

Characteristics	Influence Factor	Effect	Reference(s)
Personal*	Good Health & Physiological Status	+[1]	[29]
	Higher Educational Status	+[1]	[38]
	Marital Status & Having Children	+[1]	[1,38]
	Older (>30 Years) & Having Job Experience	+[1,2]	[29,38,41,43]
Job*	Leadership Supportive, Supervising & Authentic	+[1]	[26,27,29,38,39,42]
	Leadership Style: Passive-Avoidant, Laissez-Faire	-[1]	[27,39]
	Leaders Themselves Unsatisfied	-[1]	[27]
	High Job Stress & Workload	-[1,2]	[1,20,27,29,40]
	Professional Growth & Development	+[1]	[1,20,38,39]
	Job autonomy & Freedom	+[1]	[1,27–29,45]
Organizational*	Financial Factors (Salary & Benefits)	+[1,2]	[42]
	Staff Relationship (e.g. Social Support)	+[1]	[1,27,29,38]
	Patient Relationship	+[1]	[29]
	Involvement & Co-Determination	+[1]	[20,27,29,45]
	Urban Employer Location	-[1]	[28]
	Physical Working Environment & Equipment	+[1]	[28]

[1] Effect on Satisfaction [2] Effect on Retention * Factors, categorized by Penconek et al. [27] and Aloisio et al. [29]

Individual and personal factors influence nurses job satisfaction and retention. Girma et al. [38], Cho et al. [43], and Aloisio et al. [29] found positive correlations between higher educational attainment, being over 30 years old, and marital status with increased job satisfaction and retention. Older, more experienced employees often have stronger relationships with their employers demonstrate a lower propensity to quit [41] Additionally, good health and physical fitness contributes positively [29]. However, individual factors have a lower impact on retention compared to organizational context and job characteristics [29].

Regarding *job characteristics*, supportive leadership and autonomy positively correlate with satisfaction [27–30,39]. Niskala et al.[26] and Penconek et al. [27] emphasize leadership's role in contribution to satisfaction, noting that nurses with leaders who foster shared decision-making and respect, e.g. individual working patterns, are more satisfied [45]. Specchia et al. [39] and Hsu et al. [42] acknowledge the leadership style as an influence factor. If nurses get development and promotion opportunities, satisfaction is increasing [20,39]. Additionally, high job stress can negatively affect satisfaction, leading to dissatisfaction and intentions to leave, primarily when the workload is too demanding [20,27,29,40]

In the *organizational context*, Hsu et al. [42] found out, that wages contribute to the intention to remain employed in nursing. Non-monetary, relationships with colleagues and patients are essential [1]. Furthermore, the physical working environment, including access to supportive tools like lifter aids, enhances nurses' contentment [28]. The rural or urban location of the employer also impacts satisfaction, with external factors affecting satisfaction more in urban areas due to the ease of changing employers [28].

2.2. National Nursing Retention

Nationally, job satisfaction and retention present significant challenges, with nursing retention declining over the past decade [13,25,46]. 18.4 % of nurses in Germany consider quitting several times monthly [10]. In addition, the average nursing tenure is less than ten years, indicating that many nurses leave nursing until retirement [9].

As Zamel et al. [1] found that retention factors vary between health systems, underscoring the importance of national analysis. Roth et al. [32] suggest categorizing the influence on retention into the categories: (i) *financial and rewarding*, (ii) *professional* and (iii) *personal* factors, consistent with international findings.

 doi:10.20944/preprints202312.1754.v1

Regarding *financial aspects*, nurses' dissatisfaction often stems from perceived inadequacies in (non-) monetary benefits compared to nurses workload and stress [25,32]. Balance between occupational efforts and rewards is a key factor for retention [15,23,24,47,48].

In the *professional factors*, recognition and involvement in decision-making processes have notable impacts [15]. The NEXT (nurses early exit)-Study, which conducted an extensive investigation in the early 2000s, revealed that a higher intention to stay in the profession correlates with perceived leadership quality [10,24]. Moreover, increased work demands and strains, such as the emotional burden of end-of-life care, are influential, highlighting the importance of (soft) social aspects like team culture, company atmosphere, and sufficient time for direct patient care [25,32,49]. Non-sufficient patient time and the connected unfinished care work represent an emotional burden, affecting retention [50].

Regarding *personal* factors, study data lacks, but individual personalities, primarily emotional or affective, are leaving nursing more likely [51].

2.3. Implication of the Related Work to our Research

As nursing satisfaction and retention are improvable, evidence-based measures to improve nursing conditions are needed [26]. Identifying different retention factors guided our study design, including all significant retention factors in our survey, building on existing measures. Nevertheless, there is a research gap with variations in influencing factors and limitations [15,24,25,32]. Niskala et al. [26] and Zamel et al.[1] suggest that countries' health systems influence retention. National research has several limitations and needs to be updated, indicating that our research is vital.

3. Methodology

From *October 2022 to January 2023* we surveyed nurses in Bavaria, Germany.

3.1. Objectives and Research Questions (RQs)

Our single cross-sectional study is focused on two objectives: (i) to foster a broad national understanding of the prevailing satisfaction levels of nurses and the determinants that impinge on their retention in the profession, and (ii) to procure primary data that can potentially provoke measures for improvement, contextualized to contemporary challenges. In line with these objectives, we aspire to answer the following research questions:

RQ 1 **How satisfied are currently employed nurses with various work dimensions?**
RQ 2 **Which self-reported factors are considered important for nurses?**
RQ 3 **Which influencing factors on the intention to stay in the nursing profession (employee retention) can be explained in a statistical model?**

3.2. Inclusion and Exclusion Criteria

We focused on *formal nurses*, synonymous with professional nurses spanning all institutional care forms, from long-term elderly care and outpatient services to clinical nursing. We excluded informal and family caregivers as they did not align with our study's purview. Eligibility criteria dictated that participants should be *currently employed* as nurses in Bavaria, Germany. Those who had left the nursing profession and those searching for nursing employment were deemed ineligible, mainly due to recruitment impracticalities.

3.3. Data Collection Process and Sampling

Given the unavailability of a random dataset, we adopted a convenience sampling strategy, spanning over 16 weeks, from October 2022, via a LimeSurvey online survey. We partnered with

 doi:10.20944/preprints202312.1754.v1

Bavarian Health Regions[1] for our outreach, leveraging their expansive network that covers nearly all 71 Bavarian counties. As part of our dissemination efforts, institutions recruiting nurses across Bavaria were sent an introductory letter and a promotional poster. Limitations of our sampling are discussed in Section 5.

To address ethics and data protection, we implemented data privacy management and provided a self-ethical assessment. We anonymized personal data. An opt-in, with detailed information about the study and data protection (informed consent), was required for participation, and a cookie was embedded to prevent repetitive entries.

3.4. Data Collection Form (Online-Survey)

Our online survey (Appendix D) was based on established instruments like the Index for Work Satisfaction (IWS) by Stamps et al. [52], the Minnesota Satisfaction Questionaire (MSQ) [53], the Work-life-Balance Scale [54], an the Nurse's Retention Index [12,15,43,55]. We modified these validated tools to align with our research questions (RQs), integrating aspects like organizational support and autonomy from the IWS, and scale and demographics from the MSQ. Our survey also encompassed career development and social needs for a comprehensive understanding of nurses' situations. A pilot test with eight nurses ensured our survey's reliability, leading to adjustments in clarity, wording, and structure based on their feedback. The survey structure, as visualized by the next enumeration, assessed four thematic topics. We first assessed the importance of work dimensions (employer policies, management practices, leadership dynamics) followed by a satisfaction evaluation in these areas, maintaining consistency for comparison. Additionally, our survey had a retention section, including qualitative insights. Finally, we assessed demography.

(i) Importance of Work Dimensions
(ii) Satisfaction with the Work Situation
(iii) Job Commitment & Nurses Retention
(iv) Demographic Data

Our survey included (bi)nominal and ordinal variables on a four-point Likert scale ranging from 'very important' or 'fully satisfied' to 'irrelevant' or 'not at all satisfied,' detailed in Appendix B. In addition to close-ended questions, the survey also featured five open-ended questions about nurses' job situations and turnover tendencies.

3.5. Data Analysis of the Close-Ended Questions

We conducted a quantitative and qualitative mixed-method evaluation for joint displays. First, we explain our analysis of close-ended questions. Our quantitative analysis was tethered to evaluating the close-ended questions, in the following steps:

(i) *Preparation and Descriptive Statistics:* Initially, we screened and removed all incomplete data per Döring et al.'s [56] guidelines. In each analysis, we present the N. As preparation for regression analysis, we recoded variables into dummies and standardized continuous ones. Data analysis employed SPSS Ver. 27, focusing on relationships between work dimension importance and satisfaction (RQ 1 and RQ 2). The initial steps involved *descriptive* statistics, also to examine the variables
(ii) *Bivariate Statistics:* We used *bivariate statistics* to explore differences between variables and to test differences between the dependent (DV) and independent variables (IVs) regarding RQ 3). The Mann-Whitney U test was performed for ordinally scaled, non-normally distributed variables. For normal scaled variables, the chi-square test was performed. For metric, non-parametric variables, the Mann-Whitney U test could also be applied. The significance level was assumed to be $\alpha = 0.05$ and an $\alpha = 0.01$ for highly significant. The significance level explains that the β-error regarding the false null hypothesis rejection can be reduced with 95 % probability.

[1] www.gesundheitsregionenplus.bayern.de, accessed on December 17th, 2023

Preprints (www.preprints.org) | NOT PEER-REVIEWED | Posted: 22 December 2023 doi:10.20944/preprints202312.1754.v1

(iii) *Specification of the Dependent Variable (DV):* Relating to our dependent variable (DV), our regression was performed with one DV, the intention of staying in nursing for the next 12 months. The DV had the options 'yes, I plan to stay in nursing', 'maybe, if the conditions change', or 'no, I don't plan to stay in nursing'. According to Shetty et al. [35], and Döring et al. [56], the retention variable (DV) was recorded binary with 'yes, I intend to stay in the profession' and 'no, I intend to leave' expressions (no and maybe if the conditions change in one category). The 'maybe' statement has uncertainties and is conditional on change so that it can be summarized.

(iv) *Specification of Independent Variables (IVs):* The selection of IVs was literature-based, as described in Section 2.1. Tabel A3 in the Appendix shows the complete set of IVs, structured in (i) personal, (ii) job, and (iii) organizational characteristics. For example, our IVs include gender, age, education, work commute, working hours, job experience, and satisfaction with dimensions like career opportunities, payment, working hours, leadership, service organization, or team cohesion.

(v) *Multivariable Binary Logistics Regression Analysis:* To examine factors influencing the nurse's retention (RQ 3), we performed a stepwise *multivariable binary logistic regression analysis* with results in Table 10. IVs significantly related to the DV were included in the regression analysis, as listed in Table A3. As not all proposed IVs are significant, the model consists of IVs about (i) career and training opportunities, (ii) working and rest times, (iii) working hours, (iv) living conditions, (v) career choice, (vi) payment and salary, (vii) altruism, meaning to support people, (viii) age and (ix) the work area.

Table 2. Significant IVs, Included in Regression Analysis, with Scale Level.

Influence Factor	Scale	Influence Factor	Scale
Career & Training Opportunities[1,+]	Ordinal	Payment & Salary[2,+]	Ordinal
Plannable Working & Rest times [2,+]	Ordinal	Support People in Life Situations[2,+]	Ordinal
Working Hours[3]	Ordinal	Age[1]	Ordinal
Illegitimate Partners, Living Apt. [1]	Binary	Work Area: Stationary Elderly Care[2]	Binary
Career Choice: Entering Again[1]	Binary	Career Choice: Maybe, If It Changes[1]	Binary

[1] Personal Characteristics [2] Job Characteristics [3] Organizational Characteristics [+] Satisfaction

(vi) *Multivariate Model Diagnostics:* During the model specification, we examined the data to identify influential observations and potential multicollinearity among the independent variables (IVs). Predictors exhibiting multicollinearity were preemptively excluded to safeguard the model's integrity, mitigating bias [57]. The IVs exhibited weak to moderate correlations among themselves, and no multicollinearity was identified. Regarding *model diagnostics*, the model's predictive accuracy was assessed using measures such as the area under the receiver operating characteristic curve (ROC) and Nagelkerke's R^2 were checked as a quality criterion. The ROC curve is a graphical representation of the model's diagnostic ability, balancing sensitivity and specificity. Nagelkerke's R^2, a modification of the Cox and Snell R^2, estimates the variance explained by the model, serving as a goodness-of-fit measure. A higher Nagelkerke's R^2 indicates better model fit and predictive accuracy [58]. Our R^2 was 0.38 %, discussed more extensive under Section 5, including specific constraints.

(vii) *Result Interpretation:* We *interpreted* the results, displayed in tables, according to the survey's framework. The final report presents all significant estimated coefficients, odds ratios, standard errors, and p-values, offering an overview of the findings.

3.6. Data Analysis of Open-Ended Questions

In tandem with evaluating close-ended questions, we deployed a *template analysis* of open-ended questions in our cross-sectional study. The qualitative evaluation was done to enrich the statistical analysis, to support answering RQ 1 and RQ 2 (Section 3.1), and to capture nurses' perceptions regarding the job and organizational characteristics. The survey incorporated unrestricted free-text sections, enabling participants to proffer detailed reflections. Participants were asked to share

 doi:10.20944/preprints202312.1754.v1

comments and insights, primarily satisfaction or improvement suggestions, about various dimensions as visualized in the enumeration:

(i) Employer and Organizational Policies
(ii) Nursing and Organization of Care
(iii) Social Aspects (incl. Patient Relations)
(iv) Personal Conclusion (incl. Retention)

We employed a modified template analysis method with *MaxQDA*$^{\text{Ver. 20}}$, combining approaches from King et al. [59] and Brooks et. al. [60] and the qualitative content analysis techniques of Braun et al. [61] and Mayring et al. [62], including the following steps:

(i) *Familiarization and Preliminary Coding:* Initially, personal data, e.g., institution names, were removed to ensure data protection. We conducted multiple readings of all text for understanding, followed by initial coding based on first impressions.
(ii) *Thematic Clustering:* Themes emerging from the data were organized into clusters with clear inclusion criteria, forming thematic meaningful groups.
(iii) *Template Design:* An initial coding template, informed by data impressions and the survey's structure, was developed using MaxQDA for tagging and categorization. MaxQDA helped us by organizing tags, subcategories, and supercategories. We applied, tested, and modified our template, reorganizing and adding themes.
(iv) *Finalization and Multiple Coding:* The coding was finalized and applied to all data, with passages categorized into relevant themes after two comprehensive reviews.
(v) *Quality Assurance:* A second researcher (study author) reviewed the data and coding to ensure consistency and reliability in the coding process.

Our qualitative analysis, conducted on extensive responses from 950 nurses, each providing at least one free-text comment, revealed key themes across five thematic categories: 'Overall working conditions and policies', 'Leadership and Line Managers', 'Regulatory and Given Framework Conditions', 'Self-Esteem and Nursing Profession', and 'Retention to the Nursing Profession'. Each category is further divided into subcategories, with the most frequent ones detailed in Table 11. Most common subcategories primarily include reasons for leaving nursing and insights on staffing, nursing ratios, and duty scheduling. The complete classification system and qualitative data are available as supplementary material upon request. In Section 4.6, we report the results, using German translated quotes. We also compare qualitative conclusions with quantitative assumptions.

4. Results

Next, we present the demographics, nurses' satisfaction, and job retention analysis.

4.1. Demographics and Characteristics of the Study Population

N=2,572 nurses, mainly from Bavaria (Germany), participated in our study. ZIP codes starting with 94 were most common as a residential region of the surveyed nurses, meaning Lower Bavaria is represented with 598 (23.3 %) participants. In contrast, other ZIP codes had a share of less than 12.1 %. 81.4 % (n=1,707) of the nurses surveyed were women, with 60.5 % (n=1,355) having at least one child. Age decentiles were evenly distributed, except younger nurses under 20 years old at 3.6 % (n=80) and those over 60 at 6.4 % (n=143). Living situations mostly involved having another person in the household at 65.1 % (n=1,433).

When looking at *employment settings*, 57.9 % (n=1,170) of our study participants worked in inpatient hospital care, followed by long-term care at 23.9 % (n=484), outpatient care at 12.1 % (n=305), and facilities for disabilities at 3.1 % (n=62). It was found that 80.7 % (n=1,789) had a work commute of less than 30 minutes, showing that nursing is a job near home. Regarding professional experience 54.4 % (n=1,201) had accumulated 15 years or more, while the remaining 45.6 % (n=1,008) had less than 14 years. However, the long-standing experience didn't necessarily mean a long tenure with their current employer. 34.8 % (n=771) had been with their current employer for under five years, with

 doi:10.20944/preprints202312.1754.v1

31.2 % (n=689) having over 15 years of company affiliation. 28.3 % (n=629) of the surveyed nurses held a leadership position. As per weekly working hours, 57 % (n=1,270) indicated a working time of more than 35 hours, showing a predominance of full-time employment.

Alongside the 2,572 respondents to closed-ended questions, 950 nurses answered open-ended questions, detailed under Section 4.6. A detailed demographic breakdown of our study population is found under Appendix A, highlighting no marked disparities between respondents of close-ended and open-ended questions.

4.2. Job and Organizational Characteristics of Nursing

We assessed nurses' job satisfaction and the importance of various job components, regarding the survey's order and Table 1. To ease understanding, we summarized the four-point Likert scale importance and satisfaction into bivariate scales. For example 'satisfied' was aggregated of 'fully' and 'rather satisfied' and the dissatisfaction side vice versa.

4.2.1. Employer and Organizational Policies

We analyzed employer and organizational policies in Table 3. In the following table formats, we combine the perceived *importance* and *satisfaction* for comprehension.

Table 3. General Characteristics of Employer and Organizational Policies.

Variables	Relevance/ Importance				Satisfaction			
	++	+	-	--	++	+	-	--
Career & Training Opportunities	35.1% (898)	52.3% (1,339)	11.6% (296)	1.1% (28)	21.0% (483)	44.2% (1,016)	25.8% (592)	9.0% (206)
Payment & Salary	66.0% (1,681)	32.3% (822)	1.7% (43)	0.0% (1)	7.9% (184)	40.0% (926)	38.8% (889)	13.3% (307)
Co-Determination Right(s)	38.7% (992)	53.1% (1,361)	7.7% (198)	0.4% (10)	10.9% (250)	36.8% (843)	38.5% (881)	13.8% (317)
Work Promotes Health	66.4% (1,707)	28.4% (731)	4.9% (126)	0.2% (6)	10.7% (246)	45.6% (1,045)	33.5% (768)	10.2% (233)
Work-Family Reconciliation	78.1% (2,006)	18.9% (485)	2.5% (65)	0.4% (11)	11.8% (271)	38.7% (889)	34.7% (797)	14.9% (342)
Individual Working Hours	56.9% (1,458)	34.2% (877)	7.8% (201)	1.1% (27)	15.8% (364)	42.1% (971)	31.9% (735)	10.2% (236)
Leaders Recognize Suggestions	58.7% (1,507)	38.6% (992)	2.6% (66)	0.2% (4)	16.8% (384)	42.3% (966)	28.8% (659)	12.1% (276)

$^{++}$ very important | fully satisfied $^{+}$ important | rather satisfied $^{-}$ less important | rather dissatisfied $^{--}$ irrelevant | not at all satisfied

For most nurses the following employer and organizational policies are *highly relevant*:

(i) 'Payment and Salary' with 98.3 % (n=2,503),
(ii) 'Leadership Recognizes Suggestions' with 97.3 % (n=2,449),
(iii) 'Work-Family Reconciliation' with 97 % (n=2,491),
(iv) and 'Work Promotes Health' with 94.8 % (n=2,438).

Regarding the self-reported *satisfaction* the *most dissatisfying* dimensions are:

(i) 'Co-Determination Rights' with 52.3 % (n=1,198),
(ii) 'Payment and Salary' with 52.1 % (n=1,196),
(iii) and 'Work-Family Reconciliation' with 49.6 % (n=1,139).

Analyzing employer and organizational policies reveals disparities between what nurses deem relevant and their corresponding satisfaction levels, underscoring areas for potential improvement. While 'Payment and Salary' are important for over 90 %, over half of the nurses are dissatisfied with this aspect. Similar trends are observed in 'Co-determination rights' and 'Work-Family reconciliation', indicating these are priority areas where targeted measures of healthcare organizations could foster

 doi:10.20944/preprints202312.1754.v1

nurse retention. The high value placed on these factors, coupled with substantial dissatisfaction, suggests that improvements in these areas could enhance nurse retention. In this section, we focus on the objective result presentation. The impact of the importance of work aspects and the actual satisfaction, as well as measures, will be discussed more deeply in Section 5.

4.2.2. Nursing and Care Organization

Nurses' answers regarding their nursing organization are shown in Table 4.

Table 4. General Characteristics of the Nursing and Care Organization.

Variables	Relevance/ Importance				Satisfaction			
	++	+	-	--	++	+	-	--
Reliable Service Organization	63.4% (1,629)	31.8% (817)	4.5% (115)	0.3% (7)	8.4% (192)	33.4% (767)	36.9% (848)	21.4% (492)
Plannable Working & Rest Times	67.2% (1,721)	30.1% (770)	2.5% (63)	0.2% (6)	11.1% (256)	39.8% (914)	37.1% (853)	12.0% (275)
Time for Patient Care	83.9% (2,151)	15.5% (398)	0.5% (13)	0.0% (1)	8.4% (197)	24.8% (570)	36.7% (844)	30.0% (689)
Nursing Documentation	18.2% (464)	46.7% (1,191)	32.6% (831)	2.6% (66)	6.8% (154)	38.4% (875)	40.0% (912)	14.9% (340)
Working and Auxiliary Tools	53.4% (1,369)	42.5% (1,089)	4.0% (103)	0.1% (3)	11.2% (258)	55.3% (1,269)	27.3% (627)	6.1% (141)
Digitalization	24.8% (633)	43.4% (1,107)	26.8% (683)	5.0% (127)	11.0% (245)	40.1% (892)	33.1% (738)	15.8% (352)

$^{++}$ very important | fully satisfied $^{+}$ important | rather satisfied $^{-}$ less important | rather dissatisfied $^{--}$ irrelevant | not at all satisfied

For most nurses the following nursing organization characteristics are *highly relevant*:

(i) 'Time for Patient Care' with 99.5 % (n=2,549),
(ii) 'Plannable Working & Rest Times' with 97.3 % (n=2,491),
(iii) 'Working and Auxiliary Tools' with 95.9 % (n=2,458),
(iv) and 'Reliable Service Organization' with 95.2 % (n=2,446).

Dissatisfaction prevails (> 50 %) regarding the following dimensions in this section:

(i) 'Time for Patient Care' with 66.7 % (n=1,533),
(ii) 'Reliable Service Organization (e.g. with few stand-ins)' with 58.3 % (n=1,340),
(iii) and 'Nursing Documentation' with 54.9 % (n=1,252).

The highest disparity between importance and satisfaction was found in 'Time for Patient Care', 'Reliable Service Organization' and 'Plannable Working & Rest Times'.

4.2.3. Social Aspects in the Scope of Nursing

Regarding nurses social aspects, we list the self-reported perception in Table 5.

Table 5. General Characteristics of Social Aspects

Variables	Relevance/ Importance				Satisfaction			
	++	+	-	--	++	+	-	--
Team Cohesion (e.g. Relationship to Colleagues)	73.3% (1,881)	24.4% (627)	2.2% (56)	0.1% (2)	28.9% (667)	49.8% (1,147)	17.3% (398)	4.0% (92)
Relationship with Managers	40.2% (1,030)	49.6% (1,270)	9.6% (246)	0.7% (17)	17.1% (393)	42.9% (984)	29.3% (672)	10.7% (246)
Support People in Tough Situations	60.8% (1,557)	35.2% (901)	3.7% (95)	0.3% (8)	13.7% (306)	48.5% (1,086)	31.4% (703)	6.4% (144)

$^{++}$ very important | fully satisfied $^{+}$ important | rather satisfied $^{-}$ less important | rather dissatisfied $^{--}$ irrelevant | not at all satisfied

Preprints (www.preprints.org) | NOT PEER-REVIEWED | Posted: 22 December 2023 doi:10.20944/preprints202312.1754.v1

For most nurses the following social aspects in nursing are *highly relevant*:

(i) 'Team Cohesion (e.g., Relationship to Colleagues)' with 97.7 % (n=2,508),
(ii) 'Supporting People in Tough Situations' is considered crucial by 96.0 % (n=2,458),
(iii) and 'Relationship with Managers' is deemed highly significant by 89.8 % (n=2,300).

Regarding the social aspects, satisfaction prevails. *Dissatisfaction* is as follows:

(i) and 'Relationship with Managers' with 40.0 % (n=918).
(ii) 'Supporting People in Tough Situations' with 37.8 % (n=847),
(iii) and 'Team Cohesion (e.g., Relationship to Colleagues)' with 21.3 % (n=490).

As the results show, three-quarters are satisfied with the team, and satisfaction prevails in social aspects. Nevertheless, our results indicate a disparity between the relevance and satisfaction of social aspects. Social aspects are deemed to be highly important for nurses. The highest discrepancy is seen in the 'Relationship with Managers', which, despite being regarded as important by 89.8 % (n=2,300) of the respondents, satisfies 60 % (n=1,377) of respondents. Similarly, 'Supporting People in Tough Situations' and 'Team Cohesion (e.g., Relationship with Colleagues' show a disparity between importance and satisfaction.

4.2.4. Summary of Job and Organizational Characteristics

The revealed disparities offer a proposal for a guideline to prioritize measures and are summarized in Table 6. Our results highlight that monetary factors aren't the most important and common points of dissatisfaction. The top five values respondents considered most important were 'Time for Patient Care' (99.5 %), 'Payment and Salary' (98.3 %), 'Team cohesion (97.7 %), 'Leaders Recognize Suggestions' (97.3 %), and 'Plannable Working & Rest Time' (97.3 %). Satisfaction levels range from 33.3 % for 'Time for Patient Care' to 59.1 % for 'Leaders Recognize Suggestions'. The top five dimensions that the respondents considered most dissatisfying were 'Time for Patient Care' (66.7 %), 'Reliable Service Organization' (58.3 %), 'Nursing Documentation' (54.9 %), 'Co-Determination Right(s)' (52.3 %), and 'Payment and Salary' (52.1 %). A notable gap exists between nurses' job satisfaction and their perceived importance of dimensions, particularly in 'Time for Patient Care'.

Table 6. Summary of Job & Organizational Characteristics

Top 5: Variables	Important[1]	Top 5: Variables	Dissatisfied[2]
Time for Patient Care	99.5% (2,549)	Time for Patient Care	66.7% (1,533)
Payment and Salary	98.3% (2,503)	Reliable Service Organization	58.3% (1,340)
Team Cohesion	97.7% (2,508)	Nursing Documentation	54.9% (1,252)
Leader Recognize Suggestions	97.3% (2,499)	Co-Determination Right(s)	52.3% (1,198)
Plannable Working & Rest Time	97.3% (2,491)	Payment and Salary	52.1% (1,196)

[1] Very Import and Important [2] Rather Dissatisfied and not at all Satisfied

4.3. Description of the Individual's Conclusion, including the Occupational Decision and Retention

Nurses were asked for feedback regarding entering nursing again and their retention. First of all, they should assess their happiness with their occupational decision. 27.6 % (n=632) would definitely choose to nurse again, while 55.3 % (n=1,267) would reconsider only if work conditions improved and 17.1 % (n=393) regret to become nurses (Table 7).

Table 7. Retrospective View on the Occupational Decision.

Variable	Category	Count (%)
Would you enter nursing a second time?	Yes, again and again	27.6 %
	Maybe, when the conditions change	55.3 %
	No, never again (I regret)	17.1 %

Preprints (www.preprints.org) | NOT PEER-REVIEWED | Posted: 22 December 2023 doi:10.20944/preprints202312.1754.v1

Regarding the *intention to stay in nursing*, which is later recoded to our dependen variable, Table 8 reveals the results. 56.8 % (n=1,299) intend to remain in nursing for the next 12 months, while 32.7 % (n=747) are open to staying if conditions improve, suggesting a potential retention challenge. Additionally, 10.5 % of nurses (n=240) expressed a definite intention that they are sure not to stay in the profession in the next 12 months.

Table 8. Intention to Stay in Nursing over the Next 12 Months, N=2,286

Variable	Category	Count (%)
Do you plan to stay faithful to the nursing profession in the next 12 months?	Yes, I plan to stay	56.8 %
	Maybe, when conditions change	32.7 %
	No, i won't stay	10.5 %

4.4. Health-related Feasibility of Continued Nursing

Following Table 9 visualizes the self-reported health situation. Even if nurses are willing to continue nursing, their health status can be a limiting factor to this.

Table 9. Health-Related Feasibility of Staying in Nursing over the Next 12 Months, N=2,036

Variable	Category	Count (%)
Is staying in nursing feasible in terms of your health in the next 12 months?	Yes, it's possible due to good health	14.7 %
	Maybe, when conditions change	53.3 %
	No, isn't possible due to my health	31.9 %

Among the nurses surveyed, 14.7 % (n=300) confidently expressed their health-related ability to continue in nursing, attributing this to good health. In contrast, 53.3 % (n=1,086) indicated their decision to stay is conditional, dependent on improvements in occupational situation, highlighting the uncertainty and potential health risks in the current nursing setting. Additionally, 31.9 % (n=650) felt that continuing in nursing was unfeasible due to health concerns. While some nurses are committed to staying, a significant portion needs clarification, with their decision hinging on their working conditions. The findings reveal that health is a pivotal factor in nursing retention, with about one-third viewing it as a barrier to working in the profession in the next year. The impact of health on the feasibility of continuing in nursing and potential solutions are discussed in greater depth in Section 5.

4.5. Logit Model: Influence Factors on the Intention of Staying in Nursing Profession

For answering RQ 3, we conducted a stepwise multivariable binary logistic regression analysis. *Integration of Variables:* The Dependent Variable in our regression analysis was binary-encoded targeting the response category 'Yes, I plan to stay'. The stepwise model-building is detailed in Section 3. IVs were integrated due to significance in the existing literature and substantiated by preliminary bivariate statistics. We assessed multicollinearity among IVs, with weak to neglectable correlations. Finally, nine significant IVs were incorporated in our model, including (i) 'Age', (ii) 'Living Conditions', (iii) 'Work Area', (iv) 'Working Hours', (v) 'Career Choice', (vi) 'Career and Training Opportunities', (vii) 'Payment and Salary', (viii) 'Working and Rest Times', and (ix) 'Supporting People'.

Fitting and Model Quality: Our model in shown in Table 10 was found to be statistically significant (X2 (10) = 568.09, $p < .001$, n=1711). Our model accounts for approximately 38.0 % of the variance in nurses retention (as per Nagelkerkes R^2 determination coefficient), and it successfully classifies 73.3 % of instances correctly, attesting to robustness.

 doi:10.20944/preprints202312.1754.v1

Table 10. Model: Significant Factors Contributing to Employee Retention, N=1,702

Variable (N= 1,702), R^2 = 0.38	B	S.E.	Wald	Sig.	OR	95 % CI
Age	0.21	0.05	20.85	<.000	1.23	1.13 – 1.35
Illegitimate Partners, Living Apt.	0.95	0.32	8.60	0.003	2.59	1.37 – 4.89
Work Area: Stationary Elder Care	-0.34	0.15	5.58	0.018	0.71	0.53 - 0.94
Working Hours per Week	0.18	0.09	4.38	0.036	1.20	1.01 – 1.42
Career Choice: Yes, entering again nursing	3.15	0.22	197.04	<.000	23.32	15.02 – 36.20
Career Choice: Maybe, if condition change	1.09	0.16	46.98	<.000	2.98	2.18 – 4.07
Career and Further Training Opportunities^{+}	0.28	0.07	14.61	<.000	1.33	1.15 – 1.54
Payment and Salary^{+}	0.12	0.06	3.92	0.05	1.23	1.00 -1.27
Working and Rest Times^{+}	0.24	0.09	7.80	0.01	1.28	1.08 – 1.51
Supporting People in Tough Life Situations^{+}	-0.33	0.09	14.31	<.000	0.72	0.61 - 0.85

$^{+}$ Satisfaction Var. $^{R^2}$ Nagelkerkes Determination ^{B} Regression Coefficient ^{SE} Stand. Error ^{CI} Confidence Interval

Model Explanation: Our model, as detailed in Table 10, explains the impact of various factors ranging from personal circumstances to job satisfaction elements on nurses' decisions to stay in nursing. Our model delivers the basement for evidence-based measures for healthcare policy, effectively bridging the research gap stated in Section 2 and improving practically nurses' conditions. We recommend to concern the model factors as policy implications. Further discussion on limitations and implications is presented in Section 5.

(i) *Age:* Regarding demographics, age positively correlates with retention. With every unit increase in age, the odds of retention were enhanced by 0.21 points (OR=1.23, 95 % CI=1.13 – 1.35), suggesting that older nurses are more likely to remain.
(ii) *Living Conditions:* Nurses living separately or alone demonstrate a higher propensity for job retention than other living condition categories (OR=2.59, 95 % CI=1.37 – 4.89), implying that certain personal circumstances might bolster job retention.
(iii) *Work Area:* Conversely, employment in stationary elder care was negatively associated with retention (OR=0.71, 95 % CI=0.53 - 0.95), suggesting higher attrition, hinting at potential systemic issues in elderly care, requiring attention.
(iv) *Working Hours:* Working hours influence the intention to stay (OR=1.20, 95 % CI 1.01 - 1.42), meaning a higher number of working hours is positive to retention.
(v) *Career Decision:* When considering the happiness of the occupation decision, the reentry into nursing, those expressing willingness to do so had significantly higher odds of retention (OR=23.32, 95 % CI=15.02 – 36.20). Moreover, nurses indicating potential reentry contingent upon changes in conditions showed a greater likelihood of job retention than those unwilling to reenter (OR=2.98, 95 % CI=2.18 – 4.07). These findings underline the impact of individuals' attitudes toward nursing retention.
(vi) *Career Development Opportunities:* Satisfaction with 'Career and Training Opportunities' (OR=1.33, 95 % CI=1.15 – 1.54) relates to higher retention.
(vii) *Satisfaction with Payment and Salary:* Satisfaction-related factors showed a strong positive association with nursing retention. Satisfaction with a salary positively influences retention decisions (OR=1.23, 95 % CI=1.00 – 1.27). This item highlights the relevance of financial satisfaction and, more generally, the financial security situation.
(viii) *Satisfaction with Working and Rest Times:* Satisfaction in working and rest times contributes to increased retention (OR= 1.28, 95 % CI=1.08 - 1.51). This factor emphasizes the need for work-life balance in promoting retention.
(ix) *Supporting People in Tough Situations:* Contrarily, supporting people in challenging situations was negatively associated with retention this factor is negatively associated with retention (OR=0.72, 95 % CI=0.61 - 0.85), suggesting the emotional toll.

Preprints (www.preprints.org) | NOT PEER-REVIEWED | Posted: 22 December 2023 doi:10.20944/preprints202312.1754.v1

4.6. Evaluation of Open-ended Questions: Nurses Perspective(s)

In addition to our quantitative evaluation, we performed a template analysis. Not all nurses responded to open-ended questions and wrote free text. N=950 nurses wrote one or more comments to the open-ended questions. Most nurses' statements concerned, visualized in Table 11, the area of 'Overall Working Conditions & Policies,' constituting 44.87 % (n=988) of responses. The second most prominent theme was 'Regulatory & Given Framework Conditions,' which comprised 17.48 % (n=385) of responses. 'Retention to the Nursing Profession' accounted for 15.26 % (n=336), 'Self-Esteem and Nursing Profession' for 12.44 % (n=274), and 'Leadership & Line Managers' for 9.95 % (n=219) of all responses.

Table 11. Template Analysis: (Sub-) Themes, sorted in Descending Order, N=2,202

Themes	Subthemes	Count (%)	Count (%)
Overall Working Conditions & Policies	Staffing & Nursing Ratios (i)	13.94%	44.87%
	Duty Scheduling & Working hours (ii)	9.40%	
	Payment & Compensation (iii)	9.31%	
	Health-Related Challenges (iv)	6.03%	
	Debureaucratization (v)	3.36%	
	Corporate & Team Culture (vi)	2.81%	
Regulatory & Given Framework Conditions	Digitalization (i)	7.26%	17.48%
	Regulatory Specifications & Inspections (ii)	5.54%	
	Training & Education (iii)	3.04%	
	Working Aids & Equipment (iv)	1.63%	
Retention to the Nursing Profession	Reasons to Leave Nursing (i)	9.31%	15.26%
	Reasons Staying in Nursing (ii)	5.95%	
Self-Esteem and Nursing Profession	Expectation of Nursing & Patient Demands (i)	7.36%	12.44%
	Self-Esteem of the own Role (ii)	3.00%	
	External Perception of Nurses (iii)	2.09%	
Leadership & Line Managers	Recognition & Appreciation (i)	8.17%	9.95%
	Co-Determination (ii)	1.32%	
	Hierarchies (iii)	0.45%	

4.6.1. Overall Working Conditions and Policies

We integrated illustrative quotes and structured our data according to Table 11, highlighting the role of working conditions and organizational policies. Table 12 summarizes qualitative findings, leading to recommendations for policymakers and managers.

Table 12. Summary of the Qualitative Assessment of Overall Working Conditions & Policies

	Subthemes	Quote, visualizing the Status Quo and Intervention Potential
i	Staffing Ratios	"Distributing the workload across more shoulders" (Text 2b, para. 267).
ii	Scheduling*	"No more than ten days [of consecutive service]" (Text 2b, para. 91).
		"Nursing needs a [reliable] downtime" (Text 3b, para. 124).
iii	Payment*	"Payment doesn't reflect mental and physical effort" (Text 5c, para. 68).
		"Better compensation for [extra] and holiday [work]" (Text 2b, para. 523).
iv	Health	"Need for more back-friendly work [...] and support". (Text 7c, para. 370)
		"Rising aggression among patients is alarming" (Text 5c, para. 291).
		"Stress caused by under-staffing and time pressure" (Text 4b, para. 154).
v	Bureaucracy	"Time-consuming paperwork should be delegated". (Text 1a, para. 166)
vi	Culture	"Service meetings should occur at least once a month" (Text 4b, para. 200).

Most qualitative data regarding (i), (ii) and (iii) * Qualitative Effects in alignment with Regression Analysis

In detail, the following qualitative results could be analyzed:

(i) *Staffing & Nursing Ratios:* Existing working policies lead nurses to perceive understaffing and task overabundance. Nurses usually are busy and face emotional strain, as the following quote shows: *"The dire nature of our situation is that we can't spend even five minutes with a dying person*

 doi:10.20944/preprints202312.1754.v1

begging for companionship" (Text 4b, para. 139). Furthermore, this is described as a dilemma and needs to change with the establishment of minimum staffing: *"The solution to our dilemma would involve a new calculation of the nursing staff ratio; distributing the workload across more shoulders" (Text 2b, para. 267).*

(ii) *Duty Scheduling & Working Hours:* Participants state, that work schedules are not satisfactory, especially because of long consecutive services: *"Many of us work up to 12 consecutive days and are still required to cover additional shifts. This is physically and mentally demanding" (Text 1a, para. 346).* Duty Schedules need to be re-structured as more reliable and should have a limit of consecutive shifts (Text 1a, para. 472). *"It is necessary to cut back on consecutive work days. No more than ten days in a row should be the norm" (Text 2b, para. 91).* Unreliable and often changing plans are demanding: *"Many taking over unplanned shifts and being phoned when you have time off is ruining things. In addition, rotating shifts break you down" (Text 1a, para. 472).* In addition to the relevance of down-times, Nurses desire more family-friendly working plans, with extraordinary mother shifts and reduced instances of spontaneous shift coverage (Text 5c, para 10). Family-friendliness and work-life balance are important concerns, as the following nurse states: *"Reconciling work hours with family life is challenging due to shift work. [...] Work on weekends and holidays also impacts our social life significantly" (Text 5c, para. 305).*

(iii) *Payment & Compensation:* Participants voiced a need for improved compensation for holiday work, on-call services, sick leave cover and additional shifts, alluding to what they described as a *"gratification crisis" (Text 2b, para. 524).* The following quote visualizes the importance of rewards for long shifts: *"An appropriate payment should be in place for on-call duties that require one to stay in the hospital for 24 hours. Currently, one might work up to 24 hours but only receive 60 % of the wage. This is an outdated practice that would be unthinkable in other sectors" (Text 1a, para. 209).* As the *"payment doesn't reflect the mental and physical effort involved in nursing" (Text 5c, para. 68).*, nurses called for measures regarding better remuneration that reflects nurses' work demands.

(iv) *Health-related Challenges:* Nurses emphasized the physical and mental stressors: *"Nursing is fulfilling, but burnout is pre-programmed under the present conditions. Work on a piecework basis, no time for patients, more and more patients per nurse, alone at night with 34 patients, often only two during the day. The motto is to get through the shift without anyone dying" (Text 5c, para. 402).* Nurses express an emotional toll and frustration at being unable to fulfill their roles (Text 5c, para. 291). Nurses yearn to provide *"human attention" (Text 5c, para. 404)* to patients. Patient time is nurses' vital concern.

The growing mental strain is compounded by the lack of support strategies and increasing patient aggression (Text 4b, para. 70), leading to physical and psychological impacts on nurses . *"The rising aggression among patients is alarmingly high, so it's not uncommon to go home with bruises or, even worse, being unable to switch off after work because you just can't decompress assaults" (Text 5c, para. 291). "Apart from constant verbal or physical assaults, the psychological strain caused by screaming and constant ringing, neglected patients who refuse personal hygiene and medication, is an immense burden, as is the stress caused by under-staffing and time pressure" (Text 4b, para. 154).*

Physically, nursing often results in musculoskeletal disorders, with nurses feeling unsupported (Text 7c, para. 276). Better occupational health management is needed, including health promotion, reintegration programs, and age-appropriate workplace designs, which are currently lacking (Text 1a, para. 470, 54). The *"intense circumstances of the pandemic" (Text 4b, para. 144)*, intensified the challenges (Text 5c, para. 81). *"Many nurses feel exhausted" (Text 4b, para. 144).* Additionally, a strong sense of duty sometimes results in nurses working while ill (Text 5c, para. 404). There's a call for more *"back-friendly work, grief recovery, and (...) support" (Text 7c, para. 370).*

(v) *Debureaucratization:* Nurses are concerned about the rising bureaucracy in their profession: *"Year by year, we spend more time on largely meaningless documentation, with less and less time for nursing and care" (Text 1a, para. 401).* Documentation seems to be not only time-consuming but also frustrating due to the detraction from direct patient care (Text 1a, para. 166). Solutions for burecrautization

Preprints (www.preprints.org) | NOT PEER-REVIEWED | Posted: 22 December 2023 doi:10.20944/preprints202312.1754.v1

include assistance e with documentation, streamlining documentation processes, and using digital tools to save time (Text 1a, paras. 166-168). *" Nurses should be able to focus on their roles as nurses rather than secretaries or accountants" (Text 1a, paras. 166-168).*

(vi) *Corporate & Team Culture:* Concerning corporate culture, nurses noted that a lack of accountability in addressing issues and grievances was common (Text 4b, para. 208). They called for improved communication and informal meetings with leaders, departments and colleagues(Text 4b. para. 153). Furthermore, nurses acknowledged the benefits of effective team collaboration (Text 4b, para. 142).

4.6.2. Regulatory and given framework conditions and liabilities

Many respondents see potential in digitalization, fulfilling potentially the desire to spend more direct patient time. Table 13 illustrates our framework findings:

Table 13. Summary of the Qualitative Assessment of Regulatory & Framework Conditions.

	Subthemes	Quote, visualizing the Status Quo and Intervention Potential
i	Digitalization	"Digitalization must become easier, more automated" (Text 3b, para. 117).
		"We need to overcome interface problems" (Text 1a, para. 310).
ii	Specifications	"Nurses should be able to retire at age 63" (Text 1a, para. 109).
		"Healthcare is a state duty"! (Text 1a, para. 180)
iii	Training*	"Degrees leading up to physician assistant or physician" (Text 5c, para. 56).
		"Nursing academia should be more appealing" (Text 1a, para. 545).
		"Nursing trainees should receive superior training" (Text 1a, para. 528).
		"[Facilitate] language skills, [with] courses and exams" (Text 2b, para. 390).
iv	Equipment	"Better provision of nursing aids is necessary" (Text 1a, para. 434).
		"Larger patient rooms that facilitate [...] mobilization" (Text 3b, para. 71).
		"Separate rooms for breaks and administration" (Text 3b, para. 382).

Most qualitative data regarding (i) and (ii) * Qualitative Effects in alignment with Regression Analysis

In detail, qualitative results regarding the framework conditions were analyzed:

(i) *Digitalization:* Current digital healthcare solutions are limited by operation speed, updates, glitches, unreliable connections, lack of interfaces, and software that only encompasses part of nursing processes and wastes time (Text 1a, para. 265). Despite seeing the digitalization potential for efficiency, nurses felt that more investments were needed. Nurses prefer one parent systems: *"We need meaningful digitization with functional programs and interfaces, not a multitude of individual software" (Text 1a, para. 150).* Furthermore, *"training and user-friendliness (Text 1a, para. 296)"* and, that *"digitalization must become easier" (Text 3b, para. 117)*, were essential to nurses.

(ii) *Specifications & Inspections:* Nurses felt that political change was necessary, with many advocating for earlier retirement: *"How can I provide quality care if I'm expected to work until 67? We might end up needing assistance ourselves while trying to help" (Text 7c, para. 42).* Nurses also want to change their representation through a chamber (Text 1a, para 288). In relation to the pandemic, strict rules, including mandatory vaccination and mask-wearing, were criticized (Text 1a, para. 187). Some nurses stated wearing FFP2 masks nonstop as an *"equivalent to a physical assault" (Text 1a, para. 197)* and emphasized the demanding conditions during COVID-19. Backed by pandemic experiences, nurses have predominantly a negative view towards privatizing healthcare facilities, leading to statements like: *"The privatization of healthcare must be stopped. Money from health and care insurance can't lead to profits and shareholder disbursements up to 15 %, besides on [nurses] back (Text 1a, para. 180).* Nurses emphasize the importance of public welfare, seeing healthcare as a *"state duty" (Text 1a, para. 180).*

(iii) *Training & Education:* Training and education are essential and must be reflected in nursing. Nurses want better support and supervision for trainees, expanded professional competencies, and increased focus on practical training (Text 5c, para 56). There should be more career opportunities as shown in the following quote: *"Nursing should follow a U.S.-like professionalization*

Preprints (www.preprints.org) | NOT PEER-REVIEWED | Posted: 22 December 2023 doi:10.20944/preprints202312.1754.v1

model, with refined degrees leading up to physician assistant or physician" (Text 5c, para. 56). Nurses also highlighted the importance of *" superior training" (Text 1a, para. 528)* and *"language [...] courses and examinations" (Text 2b, para. 390).* Apprentices should be mentored and guided, trainees*"should not manage a ward independently and always have a contact person on site" (Text 1a, para. 528).*

Nurses also mentioned the relevance of lifelong learning, including the need for ongoing support to enhance their proficiency (Text 1a, para 31). Suggestions to advance nursing education ranged from extending the duration of training to developing academic programs paralleling those in the medical field (Text 1c, para 342).

(iv) *Working Aids & Equipment:* Nurses raised worries about aids such as standing aids, slings, and boards for patient transfers, noting *"simple equipment like toilet chairs or wheelchairs are often outdated, broken, and insufficient" (Text 3b, para. 322). "More and better provision of nursing aids is necessary for the raising number of elderly" (Text 1a, para. 434).* In addition, nurses highlighted the facilities, needing *" larger patient rooms that promote freedom of movement [and] mobilization" (Text 3b, para. 71).* Additionally to more spacious facilities, *"dedicated administrative areas" (Text 2b, para. 511)* and suggestions to install automatic slinging doors to improve accessibility were mentioned.

4.6.3. Self-Esteem and Nursing Profession Perception

Regarding the profession's perception, 162 nurses desired more patient time, reflecting concerns about the nurses expectations. Table 14 illustrates our framework findings:

Table 14. Summary of the Qualitative Assessment of Self-Esteem and Nursing Perception.

	Subthemes	Quote, visualizing the Status Quo and Intervention Potential
i	Patient Demands*	"More time for the individuals in our care" (Text 4b, para. 92).
ii	Self-Esteem*	"I love my job and put my heart and soul into it". (Text 5c, para. 27)
		"To put a smile on people's faces [...] is priceless" (Text 5c, para. 27).
		"I wanted to help people [...] and alleviate" (Text 5c, para. 110).
		"This job is doing [...] meaningful every day" (Text 5c, para. 168).
iii	External Perception	"The depiction of nursing shouldn't be negative" (Text 2b, para. 373).
		"Valuation [and] appreciation [. . .] are important" (Text 1a, para. 440).

Most qualitative data regarding (i) and (ii) * Qualitative Effects in alignment with Regression Analysis

In detail, qualitative results regarding Self-Esteem and Perception were analyzed:

(i) *Expectation of Nursing & Patient Demands:* Nurses expressed dissatisfaction with the limited time for patient care, emphasizing a need for more time to provide quality care and engage in *"conversation at the bedside" (Text 1a, para. 370).* They also want to listen to patients and meet their holistic demands (Text 1a, para. 39). The most rewarding aspect of their job, patient care, is hindered by time constraints, leading to feelings of guilt and unpaid overtime (Text 1a, para. 129, 435). Time constraints are particularly challenging in cases of dementia patients, where time for discussions with patients or relatives is scarce (Text 3b, para. 139).

(ii) *Self-esteem of the own Role:* Nurses view their role as meaningful, valuable, passionate, and loving (Text 5c, para. 20). Being a nurse is *"doing something meaningful every day" (Text 5c, para. 168).* Joy is derived from helping others, including positive emotions from patients (Text 5c, para. 414). Nurses have a high emotional motivation: Nurses *"put [...] heart and soul into [their profession]" (Text 5c, para. 27).* Nurses view their patients as customers, central to their role, and therefore, critiques are made when financial or regulatory constraints limit their ability to meet patient needs. Nurses have altruistic attitudes, wanting *"to help people, support them during difficult phases of their lives, and alleviate their suffering " (Text 5c, para. 110).* Nevertheless, nurses desire to be respected, valued, and recognized (Text 3b, para.219).

(iii) *External Perception:* Public media often emphasize negative aspects like *"overwork and shortage" (Text 2b, para. 373)*, contributing to a less attractive image of the profession and deterring potential

Preprints (www.preprints.org) | NOT PEER-REVIEWED | Posted: 22 December 2023 doi:10.20944/preprints202312.1754.v1

nursing careers. Additionally, public perception frequently overlooks nurses' crucial role in patient recovery, overshadowed by a focus on doctors (Text 1a, para. 144). *"Not only doctors heal" (Text 1a, para. 440)*. Nurses advocate for a *"respectful treatment" (Text 1a. para 315)* beyond *"1x applause a year" (Text 1a. para 315)* or *"praise and clapping" (Text 5c, para. 304)*. Nurses desire honest *"valuation" (Text 1a, para. 440)*, with one nurse equating nurses status with luxury goods (Text 5c, para. 252). Nursing needs societal change, incl. appropriate collaborations (Text 5c, para. 119) and addressing nursing's relevance (Text 1a, para. 248). Challenges also include interactions with patients' families, who sometimes *"vent frustrations on the nursing staff"* (Text 1a, para. 380), highlighting the need for policy measures recognizing that *"patients are human beings"* and everyone's potential need for care (Text 1a, para 397).

4.6.4. Leadership & Line Managers

Leadership is important in supporting nurses' health, esp. mental health. Line managers and leaders are expected to foster an environment that nurtures resilience and provides essential resources (Text 1a, para. 439). 'Recognition and Appliance' is one of the most common subtheme regarding leadership. Table 15 illustrates our findings:

Table 15. Summary of the Qualitative Assessment of Leadership and Line Managers

	Subthemes	**Quote, visualizing the Status Quo and Intervention Potential**
i	Recognition	"It's crucial for employers to value [nurses]" (Text 1a, para. 282).
ii	Co-Determination	"Include employees in key decisions, value input" (Text 1a, para. 314).
iii	Hierarchies	"Very hierarchical structures are common in clinics" (Text 4b, para. 54).
		"It is time for parity with the nursing staff" (Text 4b, para. 54).

Most qualitative data regarding (i) and (ii) * Qualitative Effects in alignment with Regression Analysis

In detail, qualitative results regarding Self-Esteem and Perception were analyzed:

(i) *Recognition & Appreciation:* Nurses emphasized the need for recognition and understanding, especially from leadership. Nurses expressed dissatisfaction with leaders' recognition, which reduces their motivation. One nurse summarized: *"It's crucial for employers to value their employees - this appreciation should be tangible. We wear [...] out every day" (Text 1a, para. 282)*. Nurses pay attention to details, like writing names correctly and personal anniversaries (Text 4b, paras. 101-102). Another added, *"Employees must be treated with respect and appreciation. Physically demanding work and willingness to step in or double shifts should be valued, not taken for granted" (Text 4b, para. 230)*.

(ii) *Co-Determination:* Nurses highlighted the necessity to *"include employees in key decisions and value their input" (Text 1a, para. 314)*. They called for communication marked by respect, transparency, and honesty, where their concerns are taken seriously (Text 4b, para. 31). Regular staff meetings and employee surveys are vital (Text 2b, para. 505).

(iii) *Hierarchies:* Nurses lamented the hospitals hierarchies as outdated. *"Physicians often act as 'gods in white'. Nurses are at the end of the food chain (Text 4b, para. 54).* They prefer flatter structures where their opinions matter (Text 2b, para. 473).

4.6.5. Retention to the Nursing Profession

The previous qualitative assumptions represented the status quo, while the focus is now on retention, the third most common super-category. Retention can result from the previous job satisfaction variables [10,35,37], so we deviate from presenting the most common comments one after the other. Our free-text comments reveal a dichotomy: 177 Nurses cite reasons for considering leaving. In comparison, 131 nurses convey factors such as their love for the nursing profession that make them stay (Text 5c, para. 20).

Preprints (www.preprints.org) | NOT PEER-REVIEWED | Posted: 22 December 2023 doi:10.20944/preprints202312.1754.v1

Table 16. Summary of the Qualitative Assessment of Factors Retention (Intention to...)

	Subthemes	Quote, visualizing the Status Quo and Intervention Potential
i	Leaving	"[Because] demanding physical & shift work, I am leaving" (Text 5c, para. 148).
		"Unsure if I can handle psychological stress" (Text 6c, para. 354).
		"Private constraints, unfavorable working hours*" (Text 5c, para. 118).
		"Fatigue after work or unpredictable calls to step in*" (Text 5c, para. 277).
		"[Nursing] doesn't allow [...] a social environment" (Text 5c, para. 277).
ii	Staying	"Nursing is my [...] passion. It's still my dream job" (Text 5c, para. 31).
		"Nurses consider [nursing as] meaningful and beautiful" (Text 5c, para. 10).

Most qualitative data regarding (i) * Qualitative Effects in alignment with Regression Analysis

In detail, qualitative results regarding nurse retention were analyzed:

(i) *Reasons to Leave Nursing:* Nurses consider leaving the profession due to multiple factors, including long-term physical strain, health issues, job burnout, and missing opportunities for further training (e.g., becoming a nursing service manager) (Text 6c, para. 128, 309). Nurses' health is a factor in leaving nursing, as one nurse shared, that *"after more than 30 years of demanding work, I am contemplating leaving. Otherwise, I face a future in a wheelchair" (Text 5c, para. 148).* The strain on nurses is high, *"due to fatigue [...] or unpredictable calls to step in" (Text 5c, para. 277).* Additionally, the emotional impact of patient deaths is significant, as a nurse mentioned, *"witnessing the death of 32 residents in four weeks was overwhelming" (Text 6c, para. 354).* Furthermore, working conditions matter, as 28 nurses expressed dissatisfaction with aspects like working hours, work-life balance, and high workload as a reason they want to quit. This sentiment reflects the challenges and exhaustion faced in the profession. Dissatisfaction leads to the attitude that nurses *"can't recommend [nursing] to young people" (Text 5c, para. 277).*

(ii) *Reasons Staying in Nursing* One central reason for staying in the profession is nurses' deep love for the job, visualized by the following quote: *"Nursing is my professional passion. It's still my dream job, and I can't imagine doing anything else" (Text 5c, para. 31-33).* Nurses expressed satisfaction with their passion as a reason to stay, described nursing as *"most meaningful and beautiful" (Text 5c, para. 27).* Nursing is perceived as more than just a profession but a vocation, worth to retend (Text 5c, para. 180).

5. Discussion

5.1. Interpretation of our Main Findings

Our study aimed to assess self-reported (RQ/,1) nurse job satisfaction, (RQ/,2) work dimensions important, and understand (RQ/,3) retention factors. Our takeaways include:

(i) *Time for patient care* self-reported as most important and dissatisfying variable. (RQ 1 - 2)
(ii) Mostly dissatisfaction in *service organisation*, *documentation*, *co-determination*, and *payment* (RQ 1)
(iii) Nursing Conditions are desired to change according to *qualitative and quantitative data* (RQ 1 - 2)
(iv) *Retention is improvable*: 56.8% intend to stay in nursing in the next 12 months. (RQ 3)
(v) *Health can be limiting*: 31.9% can't proceed with nursing due to their health for 12 months.
(vi) *Multidimensional retention factors* $^{high\ sign.}$*: Age, Career Choice, Opportunities, Support People* (RQ 3)

5.1.1. Debate Regarding the Answer of RQ 1: Satisfaction Levels and Status Quo

Regarding nurses job satisfaction (RQ 1), we revealed *mainly dissatisfaction in*: 'Time for Patient Care' (66.7 %), 'Service Organization' (58.3 %), 'Documentation' (54.9 %), 'Co-determination' (52.3 %) and 'Payment' (52.1 %), according to Table 6. Conversely, areas of higher satisfaction concerned 'Team Cohesion' (21.3 % being dissatisfied) and satisfaction with 'Working Aids' (33.4 % being dissatisfied). Our *template analysis confirmed insufficient patient time* and facilitated that nursing ratios are needed. Moreover, nurses desired to improve service organization, scheduling, and working hours. Many

 doi:10.20944/preprints202312.1754.v1

comments were also related to payment, job recognition, leadership appreciation, and health-related challenges.

Our findings resonate with both *national and international literature*. Despite various studies [24] and measures since the last decades, we revealed a higher dissatisfaction and higher intention to leave than pre-COVID findings. We didn't investigate other healthcare workers than nurses, but it would be necessary to compare to find out why doctors are more satisfied, as stated by Kramer et al. [8]. From a comparison in professions, further implications could be derived. In our study, there is a perceived lack of time for patient care, highlighting a persistent systemic issue. The NEXT study [24] and other German studies [7,31,32,49] indicate that job satisfaction in nursing can be improved, primarily in time for patients, work-life balance, and workload. Our study also reflects a gratification crisis, as evidenced by dissatisfaction with payment and appreciation [15,25]. In addition, we confirm leaderships satisfaction impact through co-determinations [26,39].

5.1.2. Debate Regarding the Answer of RQ 2: Important Values in Nurses Conditions

Regarding the RQ 2, *many variables were over 90 % important to nurses*, except 'Digitalization' (68.2 %, n=1,740) and 'Nursing Documentation' (64.9 %, n=1,655). We identified a disparity between importance and satisfaction, meaning that notably e.g. 'Time for Patient Care' was most dissatisfying but also viewed by 99.5 % (n=2,549) as essential. Other vital factors include 'Payment and Salary' (98.3 %, n=2,503), 'Team cohesion' (97.7 %, n=2,508), 'Leaders Recognize Suggestions' (97.3 %, n=2,499), and 'Plannable Working and Rest Times (97.3 %, n=2,491). In addition, our template analysis revealed a deep commitment to the nursing profession, with frustration arising from inadequate patient time. The prominent theme, 'Overall Working Conditions & Policies', highlighted staffing, schedules, remuneration, and appreciation as crucial but under-satisfied factors. Responses stress the importance of social factors and valuation, focusing on patient care and interaction.

Consistent with theories like *Maslow's Hierarchy of Needs* [63] and *Herzberg's Two-Factor Theory* [64], our study suggests that nurses prioritize a blend of material and immaterial factors, including salary and social aspects like adequate patient time. This indicates nurses may subordinate their needs to those of patients, risking self-exploitation and burnout [50]. Even if mental health wasn't our focus, measures derive from our results. Kramer et al. [8] recognize that mental health problems are common, relating to a 'helper syndrome', which can be concluded from many qualitative comments. Our findings generally align with national and international studies that emphasize work demand, salary, leadership, recognition, and work-life balance as key for nurses [26–30,38,39].

5.1.3. Debate Regarding the Answer of RQ 3: Factors to Nurses Retention

The intention to stay in nursing (RQ 3), previously measured in studies like the NEXT study [24], requires updated data reflecting changes such as those brought by COVID-19. Despite negative pandemic effects, we found a lower intention to leave (10.5 %) in our study, compared to 18.4 % nearly two decades ago [24]. About 56.8 % (n=1,299) of nurses plan to stay in the profession in the next 12 months, but 32.7 % are unsure, indicating potential for improving conditions to retain them. The multidimensional influence factors regarding retention were analyzed via a *multivariable logistic regression*, with results summarized in Table 17. Older nurses, facing challenges in changing careers, tend to stay, though health issues might prompt a shift. Those living alone are more inclined to remain in nursing, possibly due to less social support, while those in shared households may explore other careers. Our qualitative assumptions promote social aspects (esp. time for patients and reconciling work with family life) and their passion for nursing as retention factors. Additionally, satisfaction with *career choice*, *career prospects*, *payment*, *work/rest times*, and *supporting people* significantly impact their decision to stay. Despite contentment with their career choice and finding meaning in their work, nurses are concerned about *payment satisfaction*, indicating an imbalance between their workload and compensation or recognition. Closing this summary, working in *long-term elder care* is negatively associated with retention.

 doi:10.20944/preprints202312.1754.v1

Table 17. Model Summary: Factors Influencing Nurses Retention.

Likely to Stay in Nursing	Likely to Leave Nursing
Age (being an Older Nurse)	Working in Stationary Elderly Care
Living Apart/Alone	Satisfied with Supporting People
Satisfied with Career Choice & Opportunities	in Tough Situations
Satisfied with Payment and Salary	
Satisfied with Working and Rest Times	

Our study validates that factors like *age*, *satisfactory payment*, and *recognition* significantly contribute to nurses' retention, with five of the eight key factors in our model closely tied to job satisfaction, highlighting the importance of *favorable working conditions*[48]. Despite some improvements, post-COVID developments still reflect longstanding issues such as *stress*, *heavy workloads*, and *reward imbalances*, as identified in German studies[15,25,32]. Comparing our results to Poland, co-determination regarding work patterns seems important, but in our regression model, it's not included significantly [45]. Internationally, factors like *supportive leadership*, *job autonomy*, *fair compensation*, and *positive work environments* are linked to higher job satisfaction and retention, which is reflected in our work [27–30,39].

Our research also highlights the *emotional toll*, particularly in long-term care settings like elder care, where challenges include *managing dementia* and resources are more limited [29]. Nurses often face *emotional distress* and potential burnout from deep patient relationships, leading to considering leaving the profession [7,50].

Additionally, our study reveals crucial factors not extensively covered in previous research, such as *satisfaction with working and rest times*, and *career advancement opportunities*, broadening the knowledge spectrum. However, not all influential factors, like leadership, were included in our model due to limited effect sizes. *Effective leadership* is still crucial in nurses' retention decisions, as evidenced by other studies [10,24,32,49].

5.2. Methodical Limitations

Our study, offering a view of nursing conditions and retention, faces limitations.

5.2.1. Generalizability and Sample Focus

Our study's focus on Bavarian nurses limits its *generalizability* to wider regions or national contexts. The study population mainly consisted of female participants working in inpatient hospital care, with under-representation from other care services. The absence of a comparison group from other areas restricts the scope, highlighting the future need for broader geographic research. The reliance on a *convenience sample* and online survey targeting currently employed nurses may have introduced *self-reporting bias* and missed insights from nurses who have left the profession [56]. Additionally, being conducted *post-COVID-19*, the study might reflect specific pandemic-related stressors, potentially affecting our findings. This approach may not fully represent the diversity of nursing experiences concerning the accuracy and completeness of our results.

5.2.2. Instrument and Survey Limitations

Our survey, developed with inspiration from validated instruments like the Index for Work Satisfaction [52], the Minnesota Satisfaction Questionnaire [53], the Work-Life-Balance Scale [54] and national nursing studies [12,15,43,55], aimed to cover a wide range of personal, organizational, job-related, and demographic factors. We aimed to cover a *broad spectrum of themes to ensure a well-rounded analysis*. In our survey, we included further literature-based variables, primarily 'Team Cohesion,' 'Corporate policies, ' and' aspects of 'Leadership'. Additionally, existing surveys often come with licensing restrictions, limiting their use. To overcome this and contribute to the academic community, we developed our survey to be *open-access* available. Despite a pretest confirming the

 doi:10.20944/preprints202312.1754.v1

survey's relevance, the survey's depth and detail were limited. Our choice to utilize a modified Likert scale, *excluding a neutral option*, was deliberate to encourage decisive responses from participants. Furthermore, our survey doesn't employ an index because it doesn't incorporate all variables from the original validated questionnaires.

Our study intentionally delivers a big picture of nurses' conditions but needs more details about variables and scales. For example, Kilanska et al.[45] *work patterns*, including shifts and autonomy to influence working times, connection to retention, which isn't integrated in our survey. In addition, our categorization of *work areas* could have been more granular, distinguishing between intensive care and general wards. In further iterations, this should be more detailed, as specific areas like intensive care may face higher stress levels and retention challenges [65]. Furthermore, our study didn't measure nurses' *personality traits*, but previous studies highlighted a potential effect of personalities [66]. In addition, we didn't measure nurses *mental health*, even though this will be more common regarding Kramer et al. [8,67]. Analyzing mental health and nursing retention dependencies would be interesting. Regarding our survey, future governmental-supported research should include the *development of a more detailed and valid national comprehensive survey*.

5.2.3. Data Analysis

Our *cross-sectional* study employed open-ended and close-ended questions, leading to statistical and template analysis. The *quantitative analysis* focused on close-ended questions, which provide relatively limited information about the assessed variables. Additionally, relying on the Likert point scale for some dimensions introduces subjectivity and potential response bias. The regression analysis, identifying predictors of job retention, showed a Nagelkerke R^2 value of 0.38. While considered good by Backhaus et al. [58], other influences might not be included in our model. The *template analysis* of the open-ended questions provided additional insights and explored each dimension more thoroughly. Nevertheless, our analysis is self-reported, and despite a quality assurance with researchers checking vice versa their coding, response bias could have affected our findings.

5.3. Recommendations and Implications for Nursing Practice, Managers and Policymakers

Despite our limitations, employers should prioritize improving dimensions that contribute to nurse satisfaction and retention. Derived from our results we provide following the ideas to improve nurses working conditions (including a satisfaction and retention):

(i) *Patient Care Time*: Digitisation, recruiting, process optimization and de-bureaucratization .
(ii) *Image and Career*: Establish training's, career development options and start image campaigns.
(iii) *Full-Time Work*: Enable and promote full-time work and respect life situations (mother shifts).
(iv) *Shift Reform*: Reliable shift, maximum consecutive shifts and mandatory rest/ downtime.
(v *Additional staff*: Allocate additional staff for administrative tasks, freeing nurses for patient care.
(vi *Fair Compensation*: Reevaluate pay structures to be performance-oriented (e.g., for stepping in).
(vii) *Resilience*: Develop a health management system focusing on physical and mental resilience.

We recommend policymakers and managers to (i) ensure more time for direct patient care, which can be achieved probably with digitally optimized processes. Ensuring more time also includes debureaucratisation, as documentation was described as too time consuming. Nevertheless its important to establish an better image with (ii) image campaigns and improved working conditions, including also career development options. Derived from our regression analysis which showed, that more working hours facilitate to stay in nursing, leads to the implication to (iii) promote full-time work. Nevertheless to enable this mother shifts and a (iv) shift reform, with less unplanned stepping in as well a maximum consecutive shift duration and mandatory reliable downtime needs to be introduced. To facilitate supportive environments for nurses, we also recommend to recruit (v) additional staff for administrative tasks, freeing nurses for direct patient care. We recommend to (vi) reevaluate compensation, as there seems to be an actual gratification crisis. As health seems to be limiting to proceed nursing, health management systems should be implemented.

 doi:10.20944/preprints202312.1754.v1

6. Conclusions

Amid escalating demands and staff shortages in Germany's healthcare, comprehending nurses' expectations, satisfaction, and retention factors is vital. Our study addresses a national research gap, shedding light on potential starting points for improvements

6.1. Job Satisfaction and Influence on Retention

The primary conclusion, summarized in Table 18, is that several nursing job conditions require improvement, particularly to provide adequate patient care time, a factor with which more than 6.7 % (n=1,533) of nurses expressed dissatisfaction. Our template analysis reinforces that sufficient patient time is the most important and primarily dissatisfying factor for nurses, who are often socially oriented and enjoy helping others. Furthermore, over 58.3 % (n=1,340) of nurses are dissatisfied with service organization, indicating a need for more reliable schedules and fewer unplanned shifts. These findings align with existing research, highlighting the necessity to address nurses working conditions, while also recognizing the profession as a valued, sacrificial and beloved vocation [26–29,38,39,50].

Table 18. Job Satisfaction and Factors Influencing Self-Reported Retention (Regression Analysis)

More Than 50 % Dissatisfied	Factors Influencing Retention
Sufficient Time for Patient Care[1]	Demographics (Age[1], Living Conditions)
Reliable Service Organization[1]	Working Area & Working Hours
Nursing Documentation	Career Choice[2] & Satisfaction with Career Opportunities[2]
Co-determination Rights	Satisfaction with Payment and Salary
Payment and Salary[1]	Satisfaction with Working & Rest Times[1]
	Satisfaction with Supporting People[2]

[1] Deviation between expectation and satisfaction more than 50 % [2] Highly significant factors

More than half of the nurses were dissatisfied with *'Documentation'*, *'Co-Determination Rights'*, and *'Payment'*, highlighting key areas for action. Moreover notable discrepancy exists according to Table 6 between *importance* and *actual satisfaction* in job dimensions, with the highest contrast in Time for Patient Care', 'Service Organization', and 'Payment'. Our recommendations to improve *nursing satisfaction and retention* (Section 5.3) take that into account, as it seems that expectations and satisfaction in are often divided.

Our conclusion also includes factors influencing nurses' *intention to stay* in the profession. Older nurses are less likely to leave, suggesting a focus on retention strategies for *younger nurses*. Living conditions, living with partners, working in elderly care, and shorter working hours appear to negatively impact the intention to stay. Satisfaction in *career choice* and *training opportunities* significantly boosts retention prospects. Besides 'Payment and Salary', predictable *'Work and Rest Schedules* are crucial for retaining nurses. Our findings on the adverse effects of supporting people in though situations indicate a need for further research to explore how sustained altruistic efforts might impact *nurse retention*.

6.2. Further Research

Our study identifies improvable workplace conditions, notably in *patient care time*, *service organization*, *documentation*, *co-determination rights*, and *payment*. In addition to evidence-based measures, we encourage other researchers to study interventions needed in our identified key areas. We recommend establishing regular, comprehensive national surveys in healthcare facilities to assess nursing conditions in a *longitudinal analysis*. The scientific community will benefit from creating a *nursing panel*, providing deeper insights and evaluating the impacts of pandemics or policy interventions. Moreover, we urge the further development of our survey, including broader populations, comparison nursing units, and evolving the impact of *digitalization and robotics* on the work environment.

Author Contributions: Conceptualization, D.S.; Supervision, F.W, S.W.; Resources, F.W.; Methodology, D.S.; Investigation, D.S; Formal Analysis, D.S.; Validation and Review, D.S., F.W., S.W.; writing—original draft

 doi:10.20944/preprints202312.1754.v1

preparation, D.S.; writing—review and editing, D.S.; visualization, D.S. All authors have read and agreed to the published version of the manuscript.

Funding: Our personnel costs for this study were funded through the Hightech Agenda Bavaria.

Institutional Review Board Statement: We provided a Data Protection Management Process (DPM) regarding our university standards to ensure compliance, personal data protection and anonymity. Following a self-assessment in accordance with the Association of the Bavarian Universities of Applied Sciences (UAS) standards, it was established that our research design ensured no potential harm to participants, thus waiving the need for further ethical approval by the committee.

Informed Consent Statement: Informed consent was obtained from all subjects involved.

Data Availability Statement: Our research data is available from the first author Domenic Sommer and will be provided as supplementary on request due to privacy/ ethical restrictions.

Acknowledgments: We thank the Hightech Agenda Bavaria, the Bavarian Health and Food Safety Authority and GesundheitsregionenPlus, esp. in person Mr. Rene Kurz, for their support.

Conflicts of Interest: The authors declare no conflict of interest.

Abbreviations

The following abbreviations are used in this manuscript:

DV	Dependent Variable	IV	Independent Variable	OR	Odds Ratio
CI	Confidence Interval	UC	Use-Case	para.	paragraph
RQ	Research Question	esp.	especially		

Appendix A. Demographic Characteristics of the Study Population

Table A1. Demographic Distribution of Participants, without missing values (N=2,572)

Variable	Category	Total		Qualitative[1]	
Gender	Female	1,707	(81.4%)	730	(80.3%)
	Male	314	(18.6%)	179	(19.7%)
Age group	< 20 years	80	(3.6%)	20	(2.1%)
	20-29 years	427	(19.2%)	155	(16.4%)
	30-39 years	552	(24.8%)	210	(22.2%)
	40-49 years	472	(21.2%)	190	(20.1%)
	50-59 years	549	(24.7%)	275	(29.1%)
	≥ 60 years	143	(6.4%)	94	(10.0%)
Number of children	No children	883	(39.5%)	327	(34.4%)
	One child	378	(16.9%)	149	(15.7%)
	Two children and more	977	(43.7%)	474	(50.12%)
Living Conditions	Living with a partner	1,433	(65.1%)	632	(67.2%)
	Living alone	581	(26.4%)	219	(23.3%)
	Other	186	(8.5%)	89	(9.5%)
Area of work	Inpatient hospital care	1,170	(57.9%)	507	(60.2%)
	Inpatient long-term care	484	(23.9%)	188	(22.3%)
	Outpatient care	305	(15.1%)	123	(14.6%)
	Facility for disabilities	62	(3.1%)	24	(2.9%)
Work commute	< 30 minutes work commute	1,789	(80.7%)	767	(81.3%)
	30 to 60 minutes	406	(18.3%)	168	(17.8%)
	≥ 60 minutes	23	(1.0%)	9	(1.0%)
Experience in professional nursing	< 5 years	289	(13.1%)	86	(9.1%)
	5-9 years	335	(15.2%)	126	(13.4%)
	10-14 years	384	(17.4%)	153	(16.2%)
	≥ 15 years	1,201	(54.4%)	578	(61.3%)
Employment at current employer	< 5 years	771	(34.8%)	283	(29.8%)
	5-9 years	436	(19.7%)	172	(18.1%)
	10-14 years	318	(14.4%)	141	(14.9%)
	≥ 15 years	689	(31.2%)	353	(37.2%)
Leadership position	Yes	629	(28.3%)	262	(27.6%)
	No	1,590	(71.7%)	686	(72.4%)
Weekly working hours	< 20 hours/week	206	(9.3%)	99	(10.4%)
	20-35 hours/week	749	(33.7%)	339	(35.7%)
	≥ 35 hours/week	1,270	(57.0%)	512	(53.9%)

[1] Demographics of participants (N=950) with qualitative entries to the open-ended questions in the study.

Preprints (www.preprints.org) | NOT PEER-REVIEWED | Posted: 22 December 2023 doi:10.20944/preprints202312.1754.v1

Appendix B. Scale for Ordinal Variables

Table A2. Four-point Likert scale for ordinal variables.

Question direction	Labels			
What is important to you in the following areas of your work?	very important	important	less important	irrelevant
How do you feel about the current professional situation?	fully satisfied	rather satisfied	rather dissatisfied	not at all satisfied

Appendix C. Possible Influencing Factors (IVs) for our Regression Model

Table A3. Overview of Possible Influencing Factors, Independent Variables for Regression.

Influence Factor	Scale	Influence Factor	Scale
Gender[1]	Binary	Career & Training Opportunities[1,+]	Ordinal
Age[1]	Ordinal	Payment & Salary[2,+]	Ordinal
Children[1]	Ordinal	Co-Determination Right(s)[2,+]	Ordinal
Education[1]	Ordinal	Work Promotes Health[1,+]	Ordinal
Living conditions[1]	Nominal	Work-Family Reconciliation[1,+]	Ordinal
Work Commute[1]	Ordinal	Individual Working Hours[2,+]	Ordinal
Working Hours[3]	Ordinal	Leadership Recognizes Suggestions[1,+]	Ordinal
Happiness with Career Choice[1]	Ordinal	Reliable Service Organization[2,+]	Ordinal
Area of Work[2]	Nominal	Time for Patient Care[2,+]	Ordinal
Experience in Nursing[1]	Ordinal	Nursing Documentation[2,+]	Ordinal
Experience with Current Employer[1]	Ordinal	Working and Auxiliary Tools[2,+]	Ordinal
Leadership Position[2]	Nominal	Plannable Working & Rest Times [3,+]	Ordinal
Relationship with Managers[2,+]	Ordinal	Team Cohesion[2,+]	Ordinal
Health Status[1]	Nominal	Support People in Tough Situations[2,+]	Ordinal
Digitalization[2,+]	Ordinal		

[1] Personal Characteristics [2] Job Characteristics [3] Organizational Characteristics [+] Satisfaction

Appendix D. Questionnaire

Conditions in the nursing profession - *Survey by the Deggendorf Institute of Technology on the nursing profession*: A warm welcome! Your opinion about the nursing profession is important to us! Your data is collected in a privacy-friendly manner and under high-security standards! **Here is the essential information on the survey:**

- All professional carers (geriatric and nursing care) are cordially invited to participate
- Aim is to get a regional picture of personal experiences in nursing frameworks and their conditions
- Your information should serve as a basis for regional improvement measures
- Survey takes about 7 minutes
- Please fill out the questionnaire completely

With your participation, you contribute to researching an important topic! Thank you!

Part A: Individual values

What is important to you in the following areas of your work? Please rate the following items on a scale from "Very Important", "Important", "Less Important", and "Irrelevant":

 doi:10.20944/preprints202312.1754.v1

Workplace and employer

Value Variables	Very Important	Important	Less Important	Irrelevant
Career and further training opportunities	☐	☐	☐	☐
Payment/ Salary	☐	☐	☐	☐
Right(s) of co-determination	☐	☐	☐	☐
Work that promotes health (e.g. work that is easy on the back)	☐	☐	☐	☐
Reconciliation of family, care and work	☐	☐	☐	☐
Individual working hours (e.g. flexible shift models, flexitime)	☐	☐	☐	☐
Managers take suggestions into account	☐	☐	☐	☐

Care and organization

Value Variables	Very Important	Important	Less Important	Irrelevant
Career and further training opportunities	☐	☐	☐	☐
Payment/ Salary	☐	☐	☐	☐
Right(s) of co-determination	☐	☐	☐	☐
Work that promotes health (e.g. work that is easy on the back)	☐	☐	☐	☐
Reconciliation of family, care and work	☐	☐	☐	☐
Individual working hours (e.g. flexible shift models, flexitime)	☐	☐	☐	☐
Managers take suggestions/suggestions into account	☐	☐	☐	☐
Reliable service organization (e.g. few unplanned stand-ins)	☐	☐	☐	☐
Plannable working and rest times	☐	☐	☐	☐
Sufficient time for patient care	☐	☐	☐	☐
Nursing documentation	☐	☐	☐	☐
Working and auxiliary tools	☐	☐	☐	☐

Social aspects

Value Variables	Very Important	Important	Less Important	Irrelevant
Team cohesion & relationship with colleagues	☐	☐	☐	☐
Relationship with managers	☐	☐	☐	☐
Support people in though situations	☐	☐	☐	☐

Comments about values

Did you miss something? You are welcome to enter other values/contents that are important to you or write comments here. _____

Part B: Company and work situation

How do you feel about the current professional situation? (satisfaction with the current state) Please rate the following items on a scale from "Fully Satisfied", "Rather Satisfied", "Rather Dissatisfied", and "Not at all satisfied":

 doi:10.20944/preprints202312.1754.v1

Workplace and employer

Satisfaction Variables	Fully Satisfied	Rather Satisfied	Rather Dissatisfied	Not at all satisfied
Career and further training opportunities	☐	☐	☐	☐
Payment/ Salary	☐	☐	☐	☐
Right(s) of co-determination	☐	☐	☐	☐
Work that promotes health (e.g. work that is easy on the back)	☐	☐	☐	☐
Reconciliation of family, care and work	☐	☐	☐	☐
Individual working hours (e.g. flexible shift models, flexitime)	☐	☐	☐	☐
Managers take suggestions/suggestions into account	☐	☐	☐	☐

Care and organization

Satisfaction Variables	Fully Satisfied	Rather Satisfied	Rather Dissatisfied	Not at all satisfied
Reliable service organization (e.g. few unplanned stand-ins)	☐	☐	☐	☐
Plannable working and rest times	☐	☐	☐	☐
Sufficient time for patient care	☐	☐	☐	☐
Nursing documentation	☐	☐	☐	☐
Working and auxiliary tools	☐	☐	☐	☐

Social aspects

Satisfaction Variables	Fully Satisfied	Rather Satisfied	Rather Dissatisfied	Not at all satisfied
Team cohesion & relationship with colleagues	☐	☐	☐	☐
Relationship with managers	☐	☐	☐	☐
Support people in though situations	☐	☐	☐	☐

Suggestions and improvement

What do you think should change about the current situation? In your opinion, what else contributes to satisfaction? (free-text-field, that popped up after each section) _____

Part C: Personal conlusion

Please try to derive a conclusion for your work in care.

1. Would you enter nursing a second time? (choose one)

   ☐ Yes, again and again
   ☐ Perhaps when the conditions change
   ☐ No, never again

   Any additional comments or feedback: _____
2. Do you plan to stay faithful to nursing in the next 12 months? (choose one)

   ☐ Yes, I plan to stay in care
   ☐ Maybe, depends
   ☐ No, I will not stay in care

   Any additional comments or feedback: _____
3. Assuming you want to stay in nursing: Can you continue in the nursing profession in good health until you retire? (choose one)

   ☐ Yes, nothing stands in the way healthwise
   ☐ Maybe, depends
   ☐ No, healthwise it is not possible

   Any additional comments or feedback: _____

 doi:10.20944/preprints202312.1754.v1

Part D: Statistical questions

Congratulations! You have answered all the thematic questions! Finally, please provide demographic information. This additional information is important for the evaluation. Note: Your answers are anonymous, i.e. it is not possible to draw conclusions about you!

1. What is your gender?

☐ Female ☐ Male ☐ Other

2. Do you have children?

☐ No children ☐ 2 children ☐ 4 children
☐ 1 child ☐ 3 children ☐ 5 children or more

If you have children: How old is your youngest child? _____

3. What is your age?

☐ Below 20 years ☐ 30 - 39 years ☐ 50 - 59 years
☐ 20 - 29 years ☐ 40 - 49 years ☐ 60 years and older

4. What is your family status?

☐ Single, unmarried
☐ Married, living together (married couples, civil partners)
☐ Married, living separately
☐ Non-marital partners, living together
☐ Non-marital partners, living separately
☐ Divorced
☐ Widowed

5. How far is your work from home?

☐ Less than 30 minutes driving ☐ More than 60 minutes travel
☐ 30 to 60 minutes driving

6. Your company can be classified as follows:

☐ Outpatient care ☐ Inpatient Nursing
☐ Inpatient care for the elderly ☐ Facilities for people with disabilities

7. Your education/ training is:

☐ Generalist nurse ☐ Geriatric nurse ☐ Nursing studies
☐ Medical nurse ☐ Nursing assistant ☐ Unskilled worker
☐ Social assistant ☐ Curative educator ☐ Other training

8. How long have you been working in nursing?

☐ Less than 5 years ☐ 10 to 14 years ☐ 20 to 30 years
☐ 5 to 9 years ☐ 15 to 19 years ☐ Over 30 years

9. How long have you worked for your current employer?

☐ Less than 5 years ☐ 10 to 14 years ☐ 20 to 30 years
☐ 5 to 9 years ☐ 15 to 20 years ☐ Over 30 years

10. How many hours do you work a week?

☐ Less than 20 h/ week
☐ 20 to 35 h/ week
☐ 35 to 50 h/ week
☐ Over 50 h/ week

11. Does your company have an employee representative body (staff/works council)?

☐ Yes ☐ No

12. Do you have management responsibility in the company?

☐ Yes ☐ No

13. If you have management responsibility: How many people you are responsible?

☐ Until 9 people
☐ 10 to 49 people
☐ 50 to 249 people
☐ From 250 people

Thank you in advance! You have made a significant contribution to researching the motivators of nursing. The survey is an important part of improving the working situation of nursing in the district. Please share the survey with your friends and colleagues.

References

1. Al Zamel, L.G.; Lim Abdullah, K.; Chan, C.M.; Piaw, C.Y. Factors Influencing Nurses' Intention to Leave and Intention to Stay: An Integrative Review. *Home Health Care Management & Practice* **2020**, *32*, 218–228. https://doi.org/10.1177/1084822320931363.
2. Schug, C.; Geiser, F.; Hiebel, N.; Beschoner, P.; Jerg-Bretzke, L.; Albus, C.; Weidner, K.; Morawa, E.; Erim, Y. Sick Leave and Intention to Quit the Job among Nursing Staff in German Hospitals during the COVID-19 Pandemic. *International Journal of Environmental Research and Public Health* **2022**, *19*, 1947. https://doi.org/10.3390/ijerph19041947.
3. Rothgang, H.; Müller, R.; Unger, R. Themenreport Pflege 2030: Was ist zu erwarten – was ist zu tun? [Topic Report Nursing 2030: What to Expect – What to Do?], 2012.
4. Parliament, E. Demographic outlook for the european union 2022: Think Tank, 2022.
5. Tur-Sinai, A.; Teti, A.; Rommel, A.; Hlebec, V.; Lamura, G. How Many Older Informal Caregivers Are There in Europe? Comparison of Estimates of Their Prevalence from Three European Surveys. *International Journal of Environmental Research and Public Health* **2020**, *17*, 9531.
6. Hackmann, T.; Moog, S. Pflege im Spannungsfeld von Angebot und Nachfrage [Nursing in the Tension Field of Supply and Demand]. *Zeitschrift für Sozialreform [Journal for Social Reform]* **2010**, *56*, 113–138. https://doi.org/10.1515/zsr-2010-0106.
7. Schmucker, R. Arbeitsbedingungen in Pflegeberufen [Working Conditions in Nursing Professions]. In *Mehr Personal in der Langzeitpflege - aber woher? [More Staff in Long-term Care - But Where From?]*; Jacobs, K.; Kuhlmey, A.; Greß, S., Eds.; Pflege-Report [Care Report], Springer Berlin Heidelberg: Berlin, Heidelberg, 2020; pp. 49–60. https://doi.org/10.1007/978-3-662-58935-9_3.
8. Kramer, V.; Papazova, I.; Thoma, A.; Kunz, M.; Falkai, P.; Schneider-Axmann, T.; Hierundar, A.; Wagner, E.; Hasan, A. Subjective burden and perspectives of German healthcare workers during the COVID-19 pandemic. *European Archives of Psychiatry and Clinical Neuroscience* **2020**, *271*, 271–281. https://doi.org/10.1007/s00406-020-01183-2.
9. Isfort, M. Monitoring Pflegepersonalbedarf Bayern 2020 [Monitoring of Nursing Personnel Requirement in Bavaria 2020], 2021.
10. Hasselhorn, H.M.; Müller, B.; Tackenberg, P.; Kümmerling. *Berufsausstieg bei Pflegepersonal: Arbeitsbedingungen und beabsichtigter Berufsausstieg bei Pflegepersonal in Deutschland und Europa: Übersetzung der NEXT-Studie [Exit from the Nursing Profession: Working Conditions and Intended Career Exit among Nursing Staff in Germany and Europe: Translation of the NEXT Study]*; Vol. 15, *Schriftenreihe der Bundesanstalt für Arbeitsschutz und Arbeitsmedizin [Series of the Federal Institute for Occupational Safety and Health]*, Wirtschaftsverl. NW [Economic Publishing] and Bundeanstalt für Arbeitsschutz und Arbeitsmedizin [Federal Institute for Occupational Safety and Health]: Bremerhaven, 2005.

11. Jacobs, K.; Kuhlmey, A.; Greß, S.; Klauber, J.; Schwinger, A., Eds. *Pflege-Report 2020 [Nursing Report 2020]*; Pflege-Report Series [Nursing Report Series], Springer Berlin Heidelberg: Berlin, Heidelberg, 2020. https://doi.org/10.1007/978-3-662-61362-7.
12. Isfort, M. 15.2 Fachkräftesituation und Arbeitszufriedenheit in der ambulanten und stationären Pflege [15.2 Professional Situation and Job Satisfaction in Outpatient and Inpatient Nursing Care]. In *Die Pflegeversicherung [The Care Insurance]*; Gaertner, T.; Gansweid, B.; Gerber, H.; Schwegler, F.; Heine, U., Eds.; Walter de Gruyter GmbH Co.KG: s.l., 2013; pp. 506–513. https://doi.org/10.1515/9783110303629.506.
13. Hinterbuchner, K.; Zuschnegg, J.; Lirussi, R.; Windhaber, T.; Archan, T.; Kadric, I. Geringe Attraktivität des Pflegeberufs bei Auszubildenden: COVID 19 hat die Belastungen verschärft [Low Attractiveness of the Nursing Profession for Trainees: COVID-19 has Intensified the Stresses]. *ProCare* **2021**, *26*, 50–55. https://doi.org/10.1007/s00735-021-1396-4.
14. Bundesamt, S. Beschaeftigte nach Berufsgruppen 2022 [Employees by Professional Groups 2022], 2023.
15. Gräske, J.; Forbrig, T.A.; Koppe, L.; Urban, S.; Neumann, F.; Boguth, K. Gratifikationskrisen, Arbeitsfähigkeit und Wunsch nach beruflichen Veränderungen – eine Querschnittsstudie bei Pflegepersonen [Gratification Crises, Work Capacity, and the Desire for Professional Changes – a Cross-Sectional Study with Nursing Personnel]. *Das Gesundheitswesen [The Healthcare system]* **2021**. https://doi.org/10.1055/a-1706-0629.
16. Radtke, R. Fachkräftemangel - Bedarf an Pflegekräften in Deutschland bis 2035: Prognostizierter Bedarf an Stationären und Ambulanten Pflegekräften* in Deutschland bis zum Jahr 2035 [Shortage of Skilled Workers - Demand for Nursing Staff in Germany until 2035: Forecasted Demand for Inpatient and Outpatient Nursing Staff* in Germany until the Year 2035], 2020.
17. Waldman, J.D.; Kelly, F.; Arora, S.; Smith, H.L. The shocking cost of turnover in health care. *Health Care Management Review* **2010**, *35*, 206–211. https://doi.org/10.1097/hmr.0b013e3181e3940e.
18. Drupp, M.; Meyer, M. Belastungen und Arbeitsbedingungen bei Pflegeberufen – Arbeitsunfähigkeitsdaten und ihre Nutzung im Rahmen eines Betrieblichen Gesundheitsmanagements [Strains and Working Conditions in Nursing Professions – Incapacity Data and their Use within Corporate Health Management]. In *Pflege-Report 2019 [Nursing Report 2019]*; Springer, Berlin, Heidelberg, 2020; pp. 23–47. https://doi.org/10.1007/978-3-662-58935-9_2.
19. Tolksdorf, K.H.; Tischler, U.; Heinrichs, K. Fluktuationsabsichten von Pflegekräften in der COVID-19-Pandemie: ein systematischer Review [Intentions of Fluctuation Among Nursing Staff During the COVID-19 Pandemic: A Systematic Review]. In Proceedings of the Soziale Gesundheit neu denken: Herausforderungen für Sozialmedizin und medizinische Soziologie in der digitalen Spätmoderne – Gemeinsame Jahrestagung der DGSMP und der DGMS [Rethinking Social Health: Challenges for Social Medicine and Medical Sociology in the Digital Late Modernity - Joint Annual Conference of the DGSMP and the DGMS]. Georg Thieme Verlag, 2022, Das Gesundheitswesen [The Healthcare System]. https://doi.org/10.1055/s-0042-1753713.
20. Boateng, A.B.; Opoku, D.A.; Ayisi-Boateng, N.K.; Sulemana, A.; Mohammed, A.; Osarfo, J.; Hogarh, J.N. Factors Influencing Turnover Intention among Nurses and Midwives in Ghana. *Nursing research and practice* **2022**, *2022*, 4299702. https://doi.org/10.1155/2022/4299702.
21. Lützerath, J.; Bleier, H.; Stassen, G.; Schaller, A. Influencing factors on the health of nurses-a regression analysis considering individual and organizational determinants in Germany. *BMC Health Services Research* **2023**, *23*, 100. https://doi.org/10.1186/s12913-023-09106-2.
22. Meier, L.L.; Spector, P.E. Job Satisfaction. In *Wiley encyclopedia of management*; Cooper, C., Ed.; Wiley: Chichester, 2014; pp. 1–3. https://doi.org/10.1002/9781118785317.weom050093.
23. Sell, S. Die Altenpflegekräfte bleiben viel länger im Beruf als bislang immer behauptet. Aber Vorsicht ist bekanntlich die Mutter der statistischen Porzellankiste – Aktuelle Sozialpolitik [The elderly care workers remain in the profession much longer than always claimed so far. But as is well known, caution is the mother of statistical china – Current Social Policy], 2018.
24. Hasselhorn, H.M.; Tackenberg, P.; Müller, B.H. Early Retirement from Nursing in Germany as a Growing Problem for the Health Service - A Review Article [Vorzeitiger Berufsausstieg aus der Pflege in Deutschland als zunehmendes Problem für den Gesundheitsdienst - eine Übersichtsarbeit]. *Gesundheitswesen (Bundesverband der Ärzte des Öffentlichen Gesundheitsdienstes (Germany)) [Healthcare (Federal Association of Physicians of the Public Health Service)]* **2003**, *65*, 40–46. https://doi.org/10.1055/s-2003-36918.

25. Alameddine, M.; Bauer, J.M.; Richter, M.; Sousa-Poza, A. Trends in job satisfaction among German nurses from 1990 to 2012. *Journal of health services research & policy* **2016**, *21*, 101–108. https://doi.org/10.1177/1355819615614045.
26. Niskala, J.; Kanste, O.; Tomietto, M.; Miettunen, J.; Tuomikoski, A.M.; Kyngäs, H.; Mikkonen, K. Interventions to improve nurses' job satisfaction: A systematic review and meta–analysis. *Journal of Advanced Nursing* **2020**, *76*, 1498–1508. https://doi.org/10.1111/jan.14342.
27. Penconek, T.; Tate, K.; Bernardes, A.; Lee, S.; Micaroni, S.P.; Balsanelli, A.P.; de Moura, A.A.; Cummings, G.G. Determinants of nurse manager job satisfaction: A systematic review. *International Journal of Nursing Studies* **2021**, *118*, 103906. https://doi.org/10.1016/j.ijnurstu.2021.103906.
28. Yasin, Y.M.; Kerr, M.S.; Wong, C.A.; Bélanger, C.H. Factors affecting nurses' job satisfaction in rural and urban acute care settings: A PRISMA systematic review. *Journal of Advanced Nursing* **2020**, *76*, 963–979. https://doi.org/10.1111/jan.14293.
29. Aloisio, L.D.; Coughlin, M.; Squires, J.E. Individual and organizational factors of nurses' job satisfaction in long-term care: A systematic review. *International Journal of Nursing Studies* **2021**, *123*, 104073. https://doi.org/10.1016/j.ijnurstu.2021.104073.
30. Yildiz, B.; Yildiz, T. A systematic review and meta–analytical synthesis of the relationship between work engagement and job satisfaction in nurses. *Perspectives in Psychiatric Care* **2022**, *58*, 3062–3078. https://doi.org/10.1111/ppc.13068.
31. Körber, M.; Schmid, K.; Drexler, H.; Kiesel, J. Subjektive Arbeitsbelastung, Arbeitszufriedenheit, Work-Life-Balance von Ärzten und Pflegekräften eines Kommunalklinikums im ländlichen Raum im Vergleich zu einem großstädtischen Universitätsklinikum [Subjective Workload, Job Satisfaction, Work-Life Balance of Doctors and Nurses in a Municipal Hospital in a Rural Area Compared to a Large Urban University Hospital]. *Das Gesundheitswesen [The Health System]* **2018**, *80*, 444–452. https://doi.org/10.1055/s-0042-121596.
32. Roth, C.; Wensing, M.; Breckner, A.; Mahler, C.; Krug, K.; Berger, S. Keeping nurses in nursing: a qualitative study of German nurses' perceptions of push and pull factors to leave or stay in the profession. *BMC Nursing* **2022**, *21*, 48. https://doi.org/10.1186/s12912-022-00822-4.
33. Gawel, J.E. Herzberg's Theory of Motivation and Maslow's Hierachy of Needs. *Practical Assessment, Research, and Evaluation* **1996**, *5*. https://doi.org/10.7275/31QY-EA53.
34. Fernández-Macias, E.; Muñoz de Bustillo Llorente, R. Job Satisfaction. In *Encyclopedia of quality of life and well-being research*; Michalos, A.C., Ed.; Springer: Dordrecht, 2014; pp. 3451–3454. https://doi.org/10.1007/978-94-007-0753-5 _1568.
35. Shetty, B.R.; Gujarathi, R. Applying Job Characteristics Model to Nursing Profession. *International Journal of Advances in Nursing Management* **2014**, *2*, 06–11.
36. Ali, W. Understanding the Concept of Job Satisfaction, Measurements, Theories and its Significance in the Recent Organizational Environment: A Theoretical Framework. *Archives of Business Research* **2016**, *4*. https://doi.org/10.14738/abr.41.1735.
37. Castle, N.G. Measuring Caregiver Retention in Nursing Homes. *The Gerontologist* **2021**, *61*, e118–e128. https://doi.org/10.1093/geront/gnab012.
38. Girma, B.; Nigussie, J.; Molla, A.; Mareg, M. Health professional's job satisfaction and its determinants in Ethiopia: a systematic review and meta-analysis. *Archives of public health = Archives belges de sante publique* **2021**, *79*, 1–11. https://doi.org/10.1186/s13690-021-00664-7.
39. Specchia, M.L.; Cozzolino, M.R.; Carini, E.; Di Pilla, A.; Galletti, C.; Ricciardi, W.; Damiani, G. Leadership Styles and Nurses' Job Satisfaction. Results of a Systematic Review. *International Journal of Environmental Research and Public Health* **2021**, *18*, 1552. https://doi.org/10.3390/ijerph18041552.
40. Tabur, A.; Choudhury, A.; Emhan, A.; Mengenci, C.; Asan, O. Clinicians' Social Support, Job Stress, and Intent to Leave Healthcare during COVID-19. *Healthcare* **2022**, *10*, 229. https://doi.org/10.3390/healthcare10020229.
41. Alkorashy, H.; Alanazi, M. Personal and Job-Related Factors Influencing the Work Engagement of Hospital Nurses: A Cross-Sectional Study from Saudi Arabia. *Healthcare* **2023**, *11*. https://doi.org/10.3390/healthcare11040572.
42. Hsu, W.; Shih, F.P. Key Factors for Enhancing Home Care Workers' Intention to Stay by Multiple-Criteria Decision Analysis. *Healthcare* **2023**, *11*, 750. https://doi.org/10.3390/healthcare11050750.

43. Cho, E.Y.; Wee, H. Factors Affecting Nurse Retention Intention: With a Focus on Shift Nurses in South Korea. *Healthcare* **2023**, *11*, 1167. https://doi.org/10.3390/healthcare11081167.
44. Demerouti, E.; Nachreiner, F. Zum Arbeitsanforderungen-Arbeitsressourcen-Modell von Burnout und Arbeitsengagement – Stand der Forschung [On the Job Demands-Resources Model of Burnout and Work Engagement – State of Research]. *Zeitschrift für Arbeitswissenschaft [Journal for Work Science]* **2019**, *73*, 119–130. https://doi.org/10.1007/s41449-018-0100-4.
45. Kilańska, D.; Gaworska-Krzemińska, A.; Karolczak, A.; Szynkiewicz, P.; Greber, M. Work patterns and a tendency among Polish nurses to leave their job. *Medycyna Pracy* **2019**, *70*, 145–153.
46. Dick, O. Ausbildungsreport Pflegeberufe 2021 [Training Report Nursing Professions 2021], 2022.
47. Neumann, P.; Klewer, J. Nursing Staff Turnover and Employee Orientation in Nursing. *Heilberufe [Health Professions]* **2008**, *60*, 13–17. https://doi.org/10.1007/s00058-008-1303-4.
48. Nolting, H.D.; Grabbe, Y.; Genz, H.O.; Kordt, M. Beschäftigtenfluktuation bei Pflegenden: Ein Vergleich der Bedeutung von arbeitsbedingtem Stress, organisationalen und individuellen Faktoren für die Absicht zum Berufswechsel und zum inner- beruflichen Arbeitsplatzwechsel [Employee turnover in nursing: A comparison of the significance of work-related stress, organizational and individual factors for the intention to change profession and intra-professional job change]. *Pflege [Nursing]* **2006**, *19*, 108–115. https://doi.org/10.1024/1012-5302.19.2.108.
49. Kroczek, M.; Späth, J. The attractiveness of jobs in the German care sector: results of a factorial survey. *The European Journal of Health Economics* **2022**, *23*, 1547–1562. https://doi.org/10.1007/s10198-022-01443-z.
50. Stemmer, R.; Bassi, E.; Ezra, S.; Harvey, C.; Jojo, N.; Meyer, G.; Özsaban, A.; Paterson, C.; Shifaza, F.; Turner, M.B.; et al. A systematic review: Unfinished nursing care and the impact on the nurse outcomes of job satisfaction, burnout, intention–to–leave and turnover. *Journal of Advanced Nursing* **2022**, *78*, 2290–2303. https://doi.org/10.1111/jan.15286.
51. Mikl-Horke, G. Zur Einführung: Über den soziologischen Begriff der Arbeit (1) [Introduction: About the Sociological Concept of Work (1)]. In *Industrie- und Arbeitssoziologie [Industry and Sociology of Work]*; Mikl-Horke, G., Ed.; Oldenburg Wissenschaftsverlag, 2007; pp. 9–16. https://doi.org/10.1524/9783486843064.9.
52. Stamps, P. Nurses and work satisfaction: an index for measurement. *AJN The American Journal of Nursing* **1998**, *98*, 16KK–16LL.
53. Weiss, D.; Dawis, R.V.; England, G.W.; Lofquist, L.H. Minnesota Satisfaction Questionnaire–Long Form, 1967. https://doi.org/10.1037/t05540-000.
54. Brough, P.; Timms, C.; O'Driscoll, M.P.; Kalliath, T.; Siu, O.L.; Sit, C.; Lo, D. Work-Life Balance Scale, 2014. https://doi.org/10.1037/t61357-000.
55. Cymbal, D.J.; Litvak, S.; Wilder, D.A.; Burns, G.N. An Examination of Variables that Predict Turnover, Staff and Caregiver Satisfaction in Behavior-analytic Organizations. *Journal of Organizational Behavior Management* **2022**, *42*, 36–55.
56. Döring, N.; Bortz, J. *Forschungsmethoden und Evaluation in den Sozial- und Humanwissenschaften [Research Methods and Evaluation in the Social and Human Sciences]*, 5. vollständig überarbeitete, aktualisierte und erweiterte auflage [5th completely revised, updated and expanded edition] ed.; Springer-Lehrbuch [Springer textbook], Springer: Berlin and Heidelberg, 2016.
57. Fromm, S. Logistische regressionsanalyse [Logistic Regression Analysis]. *Datenanalyse mit SPSS für Fortgeschrittene 2: Multivariate Verfahren für Querschnittsdaten [Data Analysis with SPSS for Advanced Users 2: Multivariate Methods for Cross-Sectional Data]* **2012**, pp. 107–158.
58. Backhaus, K.; Erichson, B.; Gensler, S.; Weiber, R.; Weiber, T. Logistic Regression. In *Multivariate Analysis*; Backhaus, K.; Erichson, B.; Gensler, S.; Weiber, R.; Weiber, T., Eds.; Springer Fachmedien Wiesbaden: Wiesbaden, 2021; pp. 267–354. https://doi.org/10.1007/978-3-658-32589-3_5.
59. King, N. Doing template analysis, Cassell (Eds.) Quallitative Organizational Research, 2012.
60. Brooks, J.; McCluskey, S.; Turley, E.; King, N. The Utility of Template Analysis in Qualitative Psychology Research. *Qualitative Research in Psychology* **2014**, *12*, 202–222. https://doi.org/10.1080/14780887.2014.955224.
61. Braun, V.; Clarke, V. Using thematic analysis in psychology. *Qualitative research in psychology* **2006**, *3*, 77–101.
62. Mayring, P. *Qualitative Content Analysis*; Sage Publications: Christchurch, New Zealand, 2021.

63. Maslow, A. Bedürfnishierarchie und Motivation[Hierarchy of Needs and Motivation]. In *Management Gurus*; Kennedy, C., Ed.; Gabler Verlag: Wiesbaden and s.l., 1998; pp. 144–146. https://doi.org/10.1007/978-3-322-82771-5 _27.
64. Herzberg, F. „Hygienefaktoren“ und „Motivationsfaktoren“ [Hygiene- and Motivational-Factors]. In *Management Gurus*; Kennedy, C., Ed.; Gabler Verlag: Wiesbaden and s.l., 1998; pp. 95–97. https://doi.org/10.1007/978-3-322-82771-5 _16.
65. Huang, H.; Xia, Y.; Zeng, X.; Lü, A. Prevalence of depression and depressive symptoms among intensive care nurses: A meta-analysis. *Nursing in Critical Care* **2022**, *27*, 739–746. https://doi.org/10.1111/nicc.12734.
66. Mikl-Horke, G., Ed. *Industrial and Work Sociology*; Oldenburg Wissenschaftsverl, 2007. https://doi.org/10.1524/9783486843064.
67. Maharaj, S.; Lees, T.; Lal, S. Prevalence and Risk Factors of Depression, Anxiety, and Stress in a Cohort of Australian Nurses. *International Journal of Environmental Research and Public Health* **2018**, *16*, 61. https://doi.org/10.3390/ijerph16010061.