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CAREER MODELS, JOB SATISFACTION, AND TYPE OF WORK-RELATED BEHAVIOR PRESENTED BY POLISH NURSES: A CROSS-SECTIONAL POST-COVID-19 STUDY

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Abstract

Background: Nurses constitute a crucial professional group within the healthcare system. Job satisfaction and opportunities for professional development directly impact the quality of medical services provided and help prevent burnout. The study aimed to assess the preferred career model, the level of job satisfaction, and determine the type of work-related behavior presented by Polish nurses. **Material and Methods:** A cross-sectional survey was conducted among 795 nurses after the COVID-19 pandemic. Three standardized scales were used: *My Career* questionnaire to access the preferred career model, the *Job Satisfaction Scale*, and *Work-Related Behavior and Experience Patterns (Arbeitsbesorgenes Verhaltens und Erlebenmuster* – AVEM*)* questionnaire assessing types of work-related behavior. Descriptive statistics, Spearman's correlation coefficient, and multiple linear regression were used for analysis of data. **Results:** The results concerning the relationship between the types of work-related behavior, job satisfaction, and the preferred career model revealed that type G (healthy) was significantly and positively correlated ($p < 0.05$, $r > 0$) with the *Challenge* subscale of the career model ($r = 0.095$, $p = 0.007$) and job satisfaction ($r = 0.136$, $p < 0.001$). The higher the score on the *Challenge* subscale and greater job satisfaction, the more pronounced type G personality. The multiple linear regression models explained only 2.5 to 5% of the variability of studied questionnaire outcomes but indicated that significant, independent predictors for the *My Career* questionnaire subscales and AVEM raw scales for each type were additional qualifications, level of education, work experience, and place of work. Significant predictors of the job satisfaction scale were employment in private healthcare facilities and a master's degree. **Conclusions:** Nurses experience job satisfaction, but the workload, demanding daily tasks, and the sense of responsibility can lead them to feel fatigued and burnt out. The preferred career model involves *Security and stability*, as well as *Service and commitment* to other domains. Only a small percentage of the variability in the results of the analyzed dependent variables was explained by the explanatory variables included in the model. Med Pr Work Health Saf. 2024;75(1):19–30

Key words: career model, job satisfaction, burnout, work-related behavior, nurses, COVID-19

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INTRODUCTION

Work is an essential aspect of life. Nurses are a key professional group that contributes to the effectiveness of the healthcare system through their participation and commitment [1]. Their work, both in direct patient care and in educational and health-promoting activities, can be a source of immense satisfaction. However, it should be noted that factors such as direct contact with patients and infectious material, physical burdens, multitasking, shift work, and time pressure can lead to challenging feelings associated with the work performed [2,3]. Job satisfaction and burnout among nurses are topics investigated in research and described as significant predictors that influence not only the well-being of nurses themselves but also the quality of medical services provided [2]. For this professional group, job satisfaction is particularly important because nurses who are satisfied with their work tend to perform it with greater commitment, dedication, and responsibility for patients. On the contrary, dissatisfaction or low job satisfaction can contribute to the development of burnout, thus reducing work effectiveness and potentially compromising patient health [2,3]. Another important aspect of nursing work is the opportunity for professional development, which is obligated by the legal and ethical conditions of the profession. According to Schein, there is a clear connection between an individual's value system, internal resources, needs, and the chosen career path. Moreover, identifying one's own areas of competence and potential allows for their proper utilisation and provides

support in crisis situations. The ability to build one's career path is positively correlated with a sense of job satisfaction, which in turn directly contributes to preventing burnout and its consequences [4].

These relationships are of particular significance in extreme situations, such as the undoubtedly challenging COVID-19 pandemic, during which nurses' hands, although protected by rubber gloves, were the only ones that could hold sick and dying patients. During this time, the heroic efforts of nurses were recognised and appreciated throughout the world [5].

Taking into account the above, the present study aimed to assess the preferred career model, the level of job satisfaction, and determine the type of work-related behavior presented by Polish nurses.

MATERIAL AND METHODS

Study design

This cross-sectional descriptive study was conducted at the beginning of 2022 among nurses employed in various medical facilities (hospital, long-term care, private sector, primary health care, outpatient specialist care, health care center, and social care home) in the Subcarpathian region of Poland. The medical facilities (N = 34) employing nurses were randomly selected using a randomized algorithm programme (EPI INFO – StatCalc software), from official list of health care units. After obtaining consent from the institutions' directors, information about the planned survey was communicated to nurses. The following inclusion criteria were applied: professionally active nurses with a minimum of 3 years of work experience who were willing to participate in the survey. Nurses who provided informed consent to participate in the study were assured of the voluntary nature of their participation and the confidentiality of their responses.

A questionnaire was provided to the respondents along with an attached envelope in paper form. To ensure the confidentiality and anonymity of responses, the completed questionnaires were collected back directly from nurses in sealed envelopes. A total of 2100 questionnaires were distributed, and 874 were collected, resulting in a 41.6% response rate. Eighty-four questionnaires were excluded due to incomplete responses. Finally, data from 795 questionnaires were included in the analysis. The observed high non-response rate, exceeding 50%, may be attributed to several factors related to the post-pandemic period of research. Notably, the heavy workload and sickness absences among nurses could have limited their availability for survey participation. Additionally, the length of the survey might have deterred potential respondents. There was also a general reluctance to participate in studies during this period, possibly exacerbated by the prevalence of multiple surveys, particularly among healthcare sector workers. These circumstances collectively present challenges in obtaining a higher response rate and should be considered when interpreting the study results.

Questionnaire

The questionnaire contained sociodemographic and professional data of the respondents and three standardised scales: *Job Satisfaction Scale* (JSS), *Work-Related Behavior and Experience Patterns (Arbeitsbesorgenes Verhaltens und Erlebenmuster* – AVEM*)* and *My Career* (MC). Participants were instructed to independently respond to the questionnaires.

Sociodemographic and professional data

After considering the distinctive aspects of nurses' work and conducting a thorough literature review, the following data were included into the questionnaire:

- sociodemographic data: age, gender, place of residence, education, additional qualifications;
- professional data: place of work, work experience as a nurse, professional position.

Job Satisfaction Scale

The JSS measures the cognitive aspect of overall job satisfaction. The scale includes 5 items: "In many respects, my work is close to the ideal," "I have great working conditions," "I am satisfied with the work," "So far, I was able to achieve what I wanted, at work," "If I had to decide again, I would choose the same job." Possible answers were: from 1 – I strongly disagree to 7 – I strongly agree.

The results obtained are summed, and the overall score indicates the level of job satisfaction. The range of results is 5–35 pts. The higher the score, the greater the sense of job satisfaction. The internal reliability of the scale, Cronbach's α is 0.864. The JSS was adapted to Polish conditions by Zalewska [6]. To use the JSS in the study, the consent was obtained.

The AVEM questionnaire

The AVEM questionnaire defines individual resources in the context of coping with the demands of professional situations making it possible to identify patterns of behavior and experiences that pose a threat to

an individual's health (authorship by Scharschmidt and Fischer [7]). The Polish adaptation was carried out by Rongiska and Werner-Gaida [7].

The questionnaire consists of 66 statements. The examined person evaluates the accuracy of each of the statements in relation to their own feelings, experiences, and experiences. The construction of the scale takes into account 3 work-related areas: professional commitment, mental resilience and strategies for coping with problem situations, and emotional attitude to work. Respondents gave their responses on a 5-point scale: 1 – completely inaccurate, 2 – mostly inaccurate, 3 – partially accurate and partially inaccurate, 4 – mostly accurate, 5 – completely accurate. Reliability tested with the Cronbach's α method for individual scales ranges from 0.78 to 0.87. To analyse the results of the AVEM questionnaire, computer software was used to ensure the completeness of the answers and identify types of work-related behavior among studied nurses. The analysis of individual results consists of comparing the values of raw scales calculated according to the key attached to the test with the norms of the selected sample, drawing a profile, and comparing it with 4 reference profiles corresponding to a specific type of behavior and experience. The AVEM assessment programme automatically calculates the values of all the scales provided in the test and compares them to the norms. The generated scoreboard plots the person's profile along with reference profiles and the likelihood of belonging to a particular pattern of behavior and experiences.

The AVEM questionnaire identifies 4 types of work-related behaviors:

- type G (from German: *gesund*), the healthy type, is an example of a person with a positive attitude towards work and committed;
- type S (from German: *sparsam*), savings type – an example of a person satisfied with the effects of their work but with average professional ambitions and low motivation to work;
- type A, overburdened risk type, is a person with low mental toughness, who assigns very high subjective meaning to work, with a clear tendency to significant energy expenditure;
- type B (from English: *burnout*), burnout type – is a person with low subjective meaning of work, low resistance to stress, has a limited ability to distance himself from difficult situations.

Analyzing the results, the following assessments were performed:

- a numerical rating of type G, S, A, and B for each respondent on a scale of 0–1. Each type is represented by a numerical value ranging from 0 to 1 (e.g., 0.3 for type G, 0.1 for type S, etc.);
- identification of the behavior type most strongly marked as G, S, A, or B for each respondent [7].

The AVEM questionnaire, together with the license and the key to develop the results, was purchased from Alta-Soft, copyright holders, license agreement No. UR/20150706/EDU.

My Career questionnaire

The *My Career* questionnaire measures the so-called "career anchors," a concept introduced by Schein. The validation was conducted by Paszkowska-Rogacz, the questionnaire included 25 questions that form 5 subscales with satisfactory internal consistency, determining the individual areas of competence, work motivation, and value system of the respondents.

The reliability of the *My Career* questionnaire was determined using the Cronbach's α coefficient, which for individual subscales was as follows: *Leadership* – 0.751, *Challenge* – 0.755, *Security and stability* – 0.721, *Lifestyle* – 0.622, *Service and dedication to others* – 0.704. The stability of the questionnaire was assessed through a test-retest using the Spearman's correlation coefficient. The questionnaire allows identifying the dominant and most preferred area for the individual being surveyed, which, when used in career development, can lead to greater job satisfaction and effectiveness. The *My Career* questionnaire is publicly available, according to the information included in the book "Professional counseling. Selected research methods" by Paszkowska-Rogacz [8].

The questionnaire is divided into 5 subscales:

- *Leadership* – relates to achievements in management, decision making, financial success, the ability to influence others, and improvement of management skills;
- *Challenge* – involves taking risks, the ability to confront difficulties, and competitiveness;
- *Security and stability* – focus on the sense of security, stability, and emotional attachment to the workplace;
- *Lifestyle* – concerns maintaining a balance between work and family life, emphasizing work-life balance;
- *Service and commitment to others* – the primary professional goal in this area is to provide assistance to others and embody humanitarian values.

Responses are provided on a 6-point scale, where 1 indicates that "this statement does not apply to me at all" and 6 indicates that "this statement applies to me completely." The results of the *My career* questionnaire

were interpreted by sten standards developed for it, with distinctions made between women and men were analysed with a division into 5 subscales and in accordance with the accepted standards of the sten scale. The sten scores of 1–4 indicate a low tendency, scores of 5–6 suggest an average tendency, and scores of 7–10 represent a high tendency toward a specific career model [8].

Statistical methods

The analysis was carried out using R software, v. 4.1 [9]. The quantitative variable analysis (expressed as numbers) was performed by calculating the mean, standard deviation, median, and quartiles. Analysis of qualitative variables (not expressed as numbers) was performed by calculating the frequency and percentage of occurrences for each value. The correlations between the quantitative variables were analysed using the Spearman's correlation coefficient. Multiple regression analysis was used to examine the influence of multiple explanatory variables on a quantitative variable. The results were presented as values of the coefficients of regression model with a 95% confidence intervals.

The UPSAmini software, licence agreement No. UR/ /20150706/EDU/2, was used to calculate the AVEM questionnaire and identify types of work-related behavior.

A significance level of 0.05 was selected for the analytical approach.

Ethics

This research project was carried out in accordance with the Declaration of Helsinki. The study was approved by the Institutional Bioethics Committee of the University of Rzeszów (Resolution No. 4/03/2020) and all appropriate administrative bodies (March 19, 2020).

RESULTS

Characteristics of the study group

The study involved the participation of 795 nurses, all of whom were women. The age of the respondents was approx. Me±SD 40.89±10.47 years, Me age = 40 (Q1–Q3 33–49.5). Detailed characteristics of the study group are presented in Table 1.

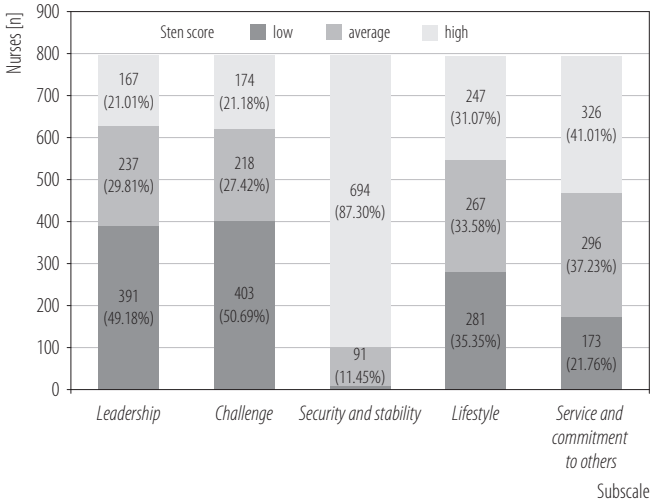
The results of the *My Career* questionnaire showed that the most preferred career model pertained to the subscales of *Security and stability* and *Service and commitment to others*, while the least preferred were the *Leadership, Challenge,* and *Lifestyle* subscales (Figure 1).

Table 1. Characteristics of the study group – nurses employed in various medical facilities in the Subcarpathian region of Poland, 2022

Variable	Participants (N = 795) [n (%)]
Work experience as a nurse	
3–5 years	124 (15.60)
6–10 years	81 (10.19)
11–15 years	205 (25.79)
16–24 years	171 (21.51)
≥25 years	214 (26.92)
Place of residence	
city	354 (44.53)
village	441 (55.47)
Place of work	
hospital	249 (31.32)
long-term care	30 (3.77)
private sector	74 (9.31)
primary health care	342 (43.02)
outpatient specialist care	50 (6.29)
health care center and social welfare home	50 (6.29)
Education	
basic nursing education	183 (23.02)
bachelor	419 (52.70)
master degree	193 (24.28)
Additional qualifications[a]	
specialization	244 (30.69)
qualification course	330 (41.51)
specialistic course	345 (43.40)
training course	225 (28.30)
other forms of additional qualifications	36 (4.53)
Professional position	
staff nurse	756 (95.09)
head-nurse	39 (4.91)

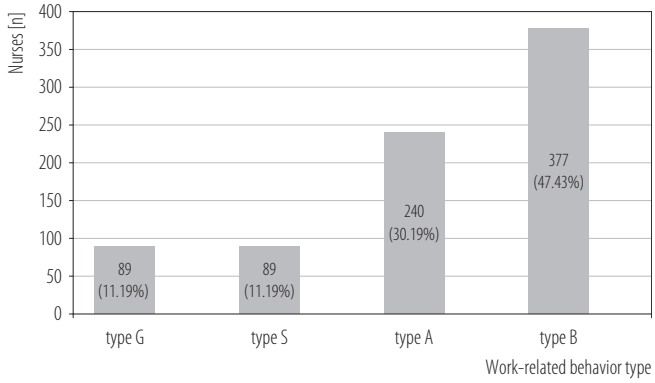
[a] The value does not add up to 100, as multiple choice was possible.

The results showed that the nurses were rather satisfied with their work. The average JSS score was 22.59 pts, which gives 4.52 pts per question (rounded to 5). Thus, the respondents were rather satisfied with their work. The preferred career models were *Security and stability, Lifestyle*, and *Service and commitment to others*. Most often, nurses presented type B work-related behavior (Table 2).



Sten scores – tendency toward a specific career model: 1–4 – low, 5–6 – average, 7–10 – high.

Figure 1. Preferred career model among Polish nurses (*My Career*) employed in various medical facilities in the Subcarpathian region of Poland, 2022



Type G – the healthy type, with a positive attitude towards work; type S – savings type, satisfied with the effects of their work, with average ambitions and low motivation; type A – overburdened risk type, with low mental toughness; type B – burnout type, with low-stress resistance.

Figure 2. Type of work-related behavior presented by Polish nurses (*Work-Related Behavior and Experience Patterns* [*Arbeitsbesorgenes Verhaltens und Erlebenmuster* – AVEM]) employed in various medical facilities in the Subcarpathian region of Poland, 2022

The results in terms of coping with demands at work showed that almost half of nurses (47.43%) had type B – burnout. The second and most numerous groups of nurses (30.19%) presented type A – overburdened risk type (Figure 2).

The linear regression model showed that significant ($p < 0.05$) independent predictors of the severity of G-type traits are work experience (6–10 years), master's degree: the regression coefficient is 0.067, which increases the severity of G-type traits by an average of 0.067 in relation to secondary education. For type S, significant ($p < 0.05$) independent predictors are place of work (work in a private institution, work in primary health care and work in an outpatient care facility).

For type A, significant ($p < 0.05$) independent predictors are place (work in outpatient specialist care [OSC]) and training course. For type B, none of the characteristics analysed is a significant independent predictor (as all $p > 0.05$) (Table 3).

The multivariate linear regression model showed that significant ($p < 0.05$) independent predictors of

Table 2. The level of job satisfaction, *My Career* subscales and *Work-Related Behavior and Experience Patterns* (*Arbeitsbesorgenes Verhaltens und Erlebenmuster* – AVEM*)* raw subscales for types of behaviors presented by studied nurses (N = 795) employed in various medical facilities in the Subcarpathian region of Poland, 2022

Scale / questionnaire	M	SD	Me	Min.	Max	Q1	Q3
Job Satisfaction Scale	22.59	6.33	23	5	35	19	27
AVEM							
type G	0.13	0.25	0.01	0	1	0	0.11
type S	0.13	0.23	0.03	0	0.99	0.01	0.12
type A	0.3	0.3	0.19	0	0.99	0.05	0.56
type B	0.43	0.36	0.4	0	1	0.05	0.79
My Career							
Leadership	10.2	5.44	9	5	30	6	13.5
Challenge	15.01	5.43	14	5	30	11	19
Safety and stability	21.46	4.98	22	5	30	17	25
Lifestyle	22.91	5.21	24	5	30	19	27
Service and commitment to others	18.89	5.56	19	5	30	15	23

Table 3. Significant predictors of types of work-related behavior among Polish nurses (*Work-Related Behavior and Experience Patterns* [*Arbeitsbesorgenes Verhaltens und Erlebenmuster* – AVEM]), job satisfaction in Polish nurses (*Job Satisfaction Scale*), and preferred career model among Polish nurses (*My Career*) employed in various medical facilities in the Subcarpathian region of Poland, 2022

Predictor	Coefficient	95% CI	p
AVEM raw subscale[a]			
type G			
work experience as a nurse			
1–5 years	ref.		
6–10 years	0.121	0.045–0.196	**0.002**
11–15 years	–0.026	–0.118–0.066	0.578
16–24 years	0.024	–0.099–0.148	0.697
≥25 years	0.033	–0.136–0.203	0.7
education			
basic nursing education	ref.		
bachelor	0.033	–0.015–0.08	0.177
master degree	0.067	0.013–0.122	**0.015**
type S			
place of work			
hospital	ref.		
long-term care	0.002	–0.086–0.09	0.963
private sector	–0.065	–0.124–(–0.005)	**0.034**
primary health care	–0.063	–0.102–(–0.024)	**0.002**
outpatient specialist care	–0.117	–0.188–(–0.046)	**0.001**
health care center and social welfare home	0.042	–0.027–0.111	0.237
type A			
place of work			
hospital	ref.		
long-term care	–0.056	–0.171–0.058	0.334
private sector	0.013	–0.065–0.091	0.741
primary health care	0.035	–0.016–0.086	0.174
outpatient specialist care	0.112	0.02–0.205	**0.018**
health care center and social welfare home	–0.062	–0.152–0.028	0.18
additional qualifications – training course			
no	ref.		
yes	0.055	0.006–0.105	**0.029**
Job Satisfaction Scale[b]			
place of work			
hospital	ref.		
long-term care	–2.455	–4.912–0.001	0.05
private sector	–2.024	–3.69–(–0.358)	**0.018**
primary health care	–0.16	–1.251–0.931	0.774
outpatient specialist care	0.557	–1.429–2.543	0.583
health care center and social welfare home	0.502	–1.43–2.434	0.611
education			
basic nursing education	ref.		
bachelor	0.996	–0.242–2.233	0.115
master degree	1.68	0.26–3.099	**0.021**
My Career[c]			
Leadership			
additional qualifications – training course			
no	ref.		
yes	1.002	0.096–1.908	**0.03**
Challenge			
education			
basic nursing education	ref.		
bachelor	1.199	0.142–2.256	**0.026**
master degree	1.037	–0.176–2.249	0.094
Lifestyle			
work experience as a nurse			
1–5 years	ref.		
6–10 years	–1.746	–3.356–(–0.136)	**0.034**
11–15 years	–0.514	–2.474–1.445	0.607
16–24 years	–1.238	–3.865–1.389	0.356
≥25 years	–0.229	–3.843–3.385	0.901
place of work			
hospital	ref.		
long-term care	0.298	–1.711–2.307	0.772
private sector	0.238	–1.124–1.601	0.732
primary health care	1.049	0.157–1.941	**0.021**
outpatient specialist care	0.566	–1.058–2.19	0.495
health care center and social welfare home	0.075	–1.505–1.655	0.926
additional qualifications			
qualification course			
no	ref.		
yes	1.522	0.651–2.394	**0.001**
specialistic course			
no	ref.		
yes	–1.015	–1.881–(–0.149)	**0.022**

Predictor	Coefficient	95% CI	p
My Career[c] – cont.			
Service and commitment to others			
place of work			
hospital	ref.		
long-term care	1.415	–0.735–3.565	0.197
private sector	1.173	–0.285–2.631	0.115
primary health care	1.363	0.408–2.317	**0.005**
outpatient specialist care	0.55	–1.188–2.288	0.535
health care center and social welfare home	0.988	–0.702–2.679	0.252
additional qualifications – qualification course			
no	ref.		
yes	1.08	0.148–2.012	**0.023**

p – multiple linear regression.
Bolded are statistically significant relationship.
[a] Adjusted to: age; place of residence; additional qualifications (specialization, qualification course, specialistic course, other forms of additional qualifications); held position.
[b] Adjusted to: age; work experience as a nurse; place of residence; additional qualifications (specialization, training course, qualification course, specialistic course, other forms of additional qualifications); held position.
[c] Adjusted to: age; place of residence; additional qualifications (specialization, other forms of additional qualifications); held position.

the JSS result were work in a private institution and master's degree education (Table 3).

The results of the *My Career* questionnaire divided into 5 subscales and analysed with a multifactor linear regression model showed, that a significant ($p < 0.05$) independent predictor of the result for the *Leadership* subscale was a training course, for the *Challenge* scale was a bachelor's degree, for the *Lifestyle* subscale were 6–10 years of work experience, work in primary health care (PHC), qualification course and specialist course, for the scale *Services and commitment to other* were work in PHC and a qualification course. In the case of the *Security and stability* subscale, none of the features analysed was a significant independent predictor of the scale score (as all $p > 0.05$) (Table 3).

The coefficient of determination (a measure of the quality of the model fit – R^2) showed that only little percentage of the variability of the result of an analysed dependent variables were explained by the explanatory variables included in the model (Table 4).

The results regarding the relationship between types of work-related behavior, job satisfaction and preferred career model (in the form of severity on a scale of 0–1) showed that type G significantly correlates ($p < 0.05$) and positively ($r > 0$) with the *Challenge* subscale, and JSS; the more pronounced the type G, the higher the score on the *Challenge* subscale and the greater job satisfaction. A higher score on the *Challenge* subscale corresponds to a more pronounced type G. Type S significantly correlates ($p < 0.05$) and negatively ($r < 0$) with the *Leadership* subscale; the more pronounced the type S, the higher the score on the *Leadership* subscale. A higher score on the *Leadership* subscale corresponds to a more pronounced type S. Type B significantly correlates ($p < 0.05$) and negatively ($r < 0$) with SSP; the more pronounced the type B, the greater the job satisfaction. Greater job satisfaction corresponds to a more pronounced type B (Table 5).

DISCUSSION

The purpose of the study was to assess the preferred career model, the level of job satisfaction and individual resources to cope with the demands of nursing jobs and to identify contributing factors. To ensure that participants can provide meaningful and informed answers and that they possess the necessary background to make valuable contributions to the research objectives, as an inclusion criterion, a minimum of 3 years of work experience was used to focus the study on individuals with a professional background [10].

The results showed that the nurses were very satisfied with their work. The result obtained may be due to the period of study, that is, the end of the pandemic and the widespread sympathy and appreciation that

Table 4. Coefficient of determination (R^2) for the analyzed models

Variable	R^2 [%]
AVEM	
type A	4.96
type B	2.75
type G	4.81
type S	4.01
Job Satisfaction Scale	2.94
My Career	
Leadership	3.74
Challenge	3.71
Safety and stability	2.51
Lifestyle	4.34
Service and commitment to others	3.67

AVEM – *Work-Related Behavior and Experience Patterns (Arbeitsbesorgenes Verhaltens und Erlebenmuster).*

Table 5. Correlation between subscales for types of work-related behaviors (*Work-Related Behavior and Experience Patterns* [*Arbeitsbesorgenes Verhaltens und Erlebenmuster* – AVEM]) with *Job Satisfaction Scale* (*JSS*) and preferred career model (*My Career* questionnaire)

AVEM raw subscale	*My Career* subscale										JSS	
	Leadership		*Challenge*		*Security and stability*		*Lifestyle*		*Service and commitment to others*			
	r	p	r	p	r	p	r	p	r	p	r	p
Type G	0.009	0.796	0.095	**0.007**	0.048	0.18	0.055	0.123	0.064	0.071	0.136	**<0.001**
Type S	–0.071	**0.044**	–0.06	0.089	–0.016	0.653	–0.025	0.481	–0.017	0.633	–0.02	0.577
Type A	0.027	0.449	0.057	0.106	0.047	0.184	0.045	0.209	0.068	0.057	0.047	0.184
Type B	0.05	0.159	–0.067	0.059	–0.048	0.174	–0.023	0.51	–0.005	0.897	–0.13	**<0.001**

r – Spearman's correlation coefficient.
Bolded are statistically significant relationships.

nurses around the world experienced at that time [5]. In the study by Andruszkiewicz et al. [11] conducted during the COVID-19 pandemic, the level of job satisfaction assessed with the same scale was at an average level (19.9 pts), Brayer and Marcinowicz obtained similar results in a study before the COVID-19 pandemic [12]. While the results of the study by Makowicz et al. conducted among 1012 nurses from 5 European countries (Poland, Germany, Italy, Great Britain, and Sweden) showed a significant decrease in job satisfaction due to the need to perform it during the pandemic [13].

The research on coping with work demands showed that nurses mainly had burnout type (type B = 47.42%) and risk of burnout type (type A = 30.19%). In the study by Olkiewicz and Andruszkieicz, nurses function most often in a burnt-out and thrifty way, and least often in a healthy way [14]. Haor et al. examining nurses' experiences related to their professional work, showed that 36% showed type B – burnt out; including 22% – risk type (A) and 26% – healthy type (G) [15]. The results of a literature review by Gotlib et al. indicate that nurses have one of the highest burnout rates compared to other professional groups. Higher levels of burnout are found only in taxi drivers, security guards and prison staff. In addition, the authors of the study point out that this is not only a problem for Polish nurses, but also applies to other countries, the lowest level of professional burnout is among Dutch nurses and the highest among nurses working in France and Slovakia. Nurses employed in Belgium, Italy, and Germany show an average level of occupational burnout [16]. Additionally, analysis of the results shows that that nurses are satisfied and at the same time largely burned out/at risk of burnout. It is an example of a kind of paradox here. This may be due to several factors, with the main one being the period of the COVID-19 pandemic – an unpredictable and very challenging time, especially for medical workers. In addition, the pandemic has introduced a lot of uncertainty, and the feeling of a lack of control over the situation can contribute to feelings of burnout and overwhelming stress [17].

During the pandemic, nurses could feel a strong sense of mission and satisfaction from helping patients in difficult times. Commitment and satisfaction from providing help could be a positive aspect of work. However, at the same time, nurses may have experienced significant stress related to a high workload, excessive responsibilities, the risk of infection, a lack of personal protective equipment, or the emotional burden associated with difficult medical decisions and patient deaths. Nurses may also have experienced trauma, especially when making difficult ethical decisions or when feeling a mismatch between professional values and limited resources or guidance [18]. Researchers studying work engagement in conjunction with the simultaneous feeling of burnout suggest that burnout and commitment are not opposites like health and disease but 2 separate states, so they can occur together [19,20]. In Kiliński's study assessing commitment to work and burnout simultaneously, 7% of respondents presented both conditions simultaneously. The author suggests that such a situation may be typical of workaholics who work intensively, but work does not give them a sense of satisfaction; rather, it is a compulsion leading to excessive workload and exhaustion [21].

Obtained results showed that the dominant anchors of the career model among the nurses surveyed were *Security and stability* and *Service and commitment to others*. This shows how important permanent employment and remuneration are for this professional group. Perhaps the results basis for the obtained was

the post-pandemic period and recent experiences related to downtimes of some companies, layoffs, and job insecurity, as well as a sense of responsibility for patients [22]. In the study by Kaczuba and Zwardoń-Kuchciak evaluating the preferred career model among young people during the COVID-19 pandemic, safety and stability, as well as lifestyle, were also at the forefront of the dominant values [23].

The multivariate linear regression model showed that significant ($p < 0.05$) independent predictors of the JSS result are work in a private institution and master's degree education. This may be due to the fact that private entities are not as burdened as public institutions. Similar results in this regard were obtained by Krzos et al. [24]. On the other hand, higher education is still the most valued skill of the employee, opening opportunities for promotion and therefore greater job satisfaction [12]. A review of the literature conducted by Lu, Zhao and While showed that the satisfaction of the job of hospital nurses is closely related to the work environment, organizational commitment, professional commitment, stress at work, patient satisfaction, and the number of patients compared to the number of nurses employed [2]. A study by Pawlik et al., comparing the job satisfaction of Polish and Norwegian nurses, showed that in both countries, job satisfaction increased with age and seniority. Norwegian nurses generally showed a higher level of job satisfaction compared to their Polish colleagues [25]. The least valued factor influencing job satisfaction was remuneration; this was also the opinion of their colleagues from Sweden [26]. However, nurses from Ireland indicated that professional autonomy is the most important factor in this respect [27].

The results of the regression in terms of types related to coping with demands at work showed that significant, independent predictors for type G were work experience (6–10 years) and a master's degree, for type S – place of work (work in a private institution, in PHC and work in OSC) and for type A – a place (work in OSC) and a training course. In the Mróz study, nurses most often presented the type of behavior at risk of professional burnout (type A), and the least frugal type (type S). The author indicates stress as an important factor that influences the ability to cope with difficult situations at work and predisposes to professional burnout [28]. Jachimowicz-Wołoszynek assessing the types of behavior related to nursing work, showed that the dominant type is at risk of burnout (type A = 21%) and as much as 41% of the burnt-out type (type B), which concerns twice as often nurses working in conservative wards. In addition, the author in her work cites examples of other studies using the AVEM questionnaire, where most of the respondents presented the burnt out or burnout-threatened type (types B and A). The result obtained may be influenced by the fact that the study group consisted of nurses working on the palliative care ward and the operating room [29]. A theoretical review of 91 studies conducted by Dall'Or et al. identifying studies from 28 countries has shown that high workload, staff shortages, and time pressure during procedures are closely related to the occurrence of professional burnout among nurses [30]. The phenomenon of occupational burnout has intensified in the face of the COVID-19 pandemic. In a Spanish study, work overload, material and human resources, and social support at work were important in explaining burnout among nurses. The variable of perceived threat of COVID-19 was also significant and had the highest regression coefficient ($\beta = 0.392$) [31].

In the case of the *My Career* questionnaire, the multivariate linear regression model showed that the significant ($p < 0.05$), independent predictors ($p < 0.05$) of the subscales analysed were additional qualifications, bachelor's degree, 6–10 years of work experience and place of work. The analysis of the articles showed that the factors that determine professional development differ depending on the length of service. Young nurses expect support from older colleagues, and experienced nurses report the need for support from management and training opportunities. On the other hand, nurses with more work experience want clear criteria for professional roles and a clear career path [32]. A review of other studies found that the key factors that supported professional development and career planning were access to structured learning opportunities in a supportive work environment, flexible working hours, and integration of leadership development [33].

The results on the relationship between the types of work-related behavior and job satisfaction and the preferred career model showed that nurses presenting a healthy type of behavior related to coping with adversities at work showed a greater tendency to the career model on the *Challenge* subscale and to greater job satisfaction. Many studies emphasize that the sense of satisfaction with work is an important factor in preventing professional burnout among many professional groups, including nurses, which also contributes to the desire for professional development. The Cetinkaya and Gunes study found that the lower the level of professional burnout, the higher the average personal

achievement scores. Moreover, these nurses presented higher results of self-realisation [34].

Hara et al. indicate that working conditions and participation in additional training will improve the level of job satisfaction and prevent leaving the profession [35].

Strength and limitations

The article aligns with numerous studies conducted post-pandemic, and the chosen topic is important in a social context and due to the demands posed by the nursing profession and the patient's right to receive the highest level of care. Standardised scales and advanced statistical methods were used in the investigation, which significantly increases the research value of the article. In the research conducted, attention was drawn to the significant relationships between the preferred model of professional career, the level of job satisfaction, and coping with the workload of the surveyed nurses. The study has some limitations that should be considered when analysing the results. First of all, the study time, that is, the period immediately after the pandemic, was very burdensome, especially for health sector employees, so the results obtained should be analysed in this context. Second, the study was conducted in one of the regions of the country and should be repeated in a larger population in other parts of Poland. Thirdly, it is a cross-sectional study; the issue of causality and temporality should not be taken into account. Additionally, other potential work-related variables, like shift work and the family situation of nurses should be taken into account in future research endeavors.

CONCLUSIONS

There is a correlation between the preferred professional career model, job satisfaction, and the type of work-related behavior among the surveyed nurses. On the one hand, nurses experience job satisfaction by recognizing, especially after the challenging period of the COVID-19 pandemic, that their work has not only a personal dimension, but also a social dimension. On the other hand, the workload, the demanding daily tasks, and the sense of responsibility can lead them to feel fatigued and burnout. The preferred career model, on the *Security and stability* as well as *Service and commitment to other* domains, also suggests that after the uncertainties brought about by the COVID-19 pandemic, the need for security, stability, and a focus on fulfilling the profession's mission are currently paramount for the respondents. Only little percentage of the variability of the result of an analysed dependent variables were explained by the explanatory variables included in the model.

The study provides information on the work-related experiences of nurses and can be used to implement changes and improvements in the healthcare system.

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