



Association of salary and intention to stay with the job satisfaction of the dietitians in Jordan: A cross-sectional study



Nour A. Elshahoryi^{a,*}, Ahmad Alathamneh^a, Iman Mahmoud^a, Fwziah Hammad^b

^a Department of Nutrition, Faculty of Pharmacy and Medical Science, University of Petra, Amman, Jordan

^b Department of Nutrition and Food Technology, Faculty of Agriculture, Jordan University of Science and Technology Amman, P.O. Box.3030, Irbid 21210, Jordan

ARTICLE INFO

Keywords:

Dietitians
Job satisfaction
Intention to stay
Salary
Job Satisfaction Survey

ABSTRACT

This cross-sectional study aimed to determine job satisfaction among the Jordanian dietitians, the factors associated with job satisfaction, and the relationship between job satisfaction and intent to stay. A convenience sample of 600 dietitians performed a self-reported online survey. Most of the participants were females (83.2%), < 30 years of age (68.3%) with a BSc degree in nutrition (77.3%). Results revealed that 20% of the dietitians were dissatisfied at work, 69.8% were neither dissatisfied nor satisfied, and 10.2% were satisfied. The satisfaction for the total score in all examined domains was neither dissatisfaction nor satisfaction, except for the salary. Participants with higher monthly salaries were 1.53 more likely to have higher job satisfaction than those with lower monthly salaries (CI 95%, (0.503–2.55)). Intention to stay was positively correlated with the total job satisfaction and all domains except the knowledge and skills domain (p-value = 0.22). The main aspect that needs to be addressed and re-evaluated is to improve dietitians job satisfaction is the salary. The findings of this study point to improving dietitians' work status to attain the best possible health care achievements.

1. Introduction

Job satisfaction could be defined as employees' attitude toward the company or firm, their job, their colleagues, and other factors that could relate to the work environment psychological atmosphere [1–4]. Job satisfaction can be set forth due to the positive reaction demonstrated toward the above mentioned factors, as well as hindered due to the negative interactions [5]. In addition, it is related to the intent to stay and it is an indicator of job quality and professional performance [3]. In the healthcare fields, job satisfaction is not only important for the institution professionals, but it also concerns all involved multidisciplinary parties including patients and clients [6]. This is because all these individuals could negatively impact the institution due to the low job satisfaction levels [3,6–10].

Job satisfaction level can range from maximum satisfaction to maximum dissatisfaction. However, this level is considered a dependent situation level, implying that it is based on individual functions and emotional and organizational variables [10]. Job recognition, salary, advancement opportunities, and achievement of personal goals have

all been recognized as important factors in job satisfaction [2,4,6,8,9,11]. Salary is considered as the main influence for enhancing the job satisfaction level of employees [8,12]. In addition, many researchers agree that job satisfaction is strongly correlated with promotion opportunities, giving a positive and direct association between job satisfaction and promotions, and increasing the level of knowledge and skills within the employee field. Knowledge management [13] and financial rewards [14] are other factors linked to high job satisfaction. The work environment, the nature of work, and the communications were reported to be additional factors influencing job satisfaction. According to Abdul Raziq: “businesses need to realize the importance of the good working environment for maximizing the level of job satisfaction” [15,16]. Lack of one these key aspects could cause a decrease in the job satisfaction level affecting negatively the job productivity of employees and their institutes [17].

It is well-known that the decrease in job satisfaction might increase the level of accidents, employee strikes, and transition of employees [18]. Though an ambiguity might occur over whether the job dissatisfaction determinant is merely based on the job itself “fundamental

Abbreviations: JSS, Job Satisfaction Survey; SD, Standard Deviation; STROBE, Strengthening the Reporting of Observational Studies in Epidemiology Guidelines.

* Corresponding author at: Department of Nutrition, Faculty of Pharmacy and Medical Sciences, The University of Petra, P.O. Box. 961343, Amman 11196, Jordan.

E-mail addresses: nour.elsahoryi@uop.edu.jo (N.A. Elshahoryi), ahmad.alathamneh@uop.edu.jo (A. Alathamneh), iman.mahmoud@uop.edu.jo (I. Mahmoud), fhammad07@agr.just.edu.jo (F. Hammad).

<https://doi.org/10.1016/j.hpopen.2021.100058>

Received 28 July 2021; Revised 20 September 2021; Accepted 7 November 2021

Available online 5 December 2021

2590-2296/© 2021 The Authors. Published by Elsevier B.V.

This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

aspect”, established inside the employee’s reason “subjective view”, or to the interaction occurring between the worker and their work environment [19]. Therefore, the importance of job satisfaction can be the result of different reasons, with the majority of research pointing out happiness-productivity relation of job satisfaction as the predictor [20]. Moreover, job satisfaction and performance have a strong linkage with each other [21]. Hence, workers are more stimulated when their physical and physic-social elements are optimum, reassuring them to do their job [22].

Jordan is one of the Arab countries that had a sudden increase in population due to the “Arab Spring” which led to an increase in the number of refugees. Consequently, the healthcare system was under pressure at that critical time. The hospitals that include in the healthcare system in Jordan is comprised of 117 hospitals (31 public hospitals, 15 military hospitals, 69 private hospitals, and 2 university hospitals) [23]. The public hospitals consists of hospitals under the Ministry of Health (MOH), the Royal Medical Services, and the university teaching hospitals. [24]. Despite the dramatic improvement in the healthcare services in Jordan, little interest has been given to the field of nutrition and dietetics and the supply of nutritionists and dietitians in the health sectors such as hospitals [1]. Data is very limited regarding the total registered Jordanian, employed, unemployed, or emigrant dietitians. Nonetheless, the postgraduate programs in nutrition and dietetics are being taught almost in all Jordanian universities [1,23]. Moreover, dietitians in Jordan are employed in hospitals (mainly), handicapped centers, hotels, pharmaceutical stores, food supply departments, sports centres, and private nutrition clinics [1]. The Agricultural Engineers Association reported that the registered dietitians were 295 individuals in 2015 and reached approximately 440 registered dietitians in 2020 [25]. This number does not represent the actual number of employed dietitians due to the fact that the dietitians in the military sector do not follow the same rules and therefore, don’t follow the Agricultural Engineers Association registration rules [25]. Job satisfaction among the registered dietitians and nutritionists is not well investigated in Jordan as in other countries [3,6,7,9,26].

Among the numerous data reporting the job satisfaction among healthcare professionals in the medical field in Jordan, most studies focused on nurses and doctors showing a slight to moderate levels of job satisfaction [27–31]. Few studies were conducted among registered dietitians internationally [1,2,4,6,32–35], and no previous studies were reported in Jordan.

Dietitians are facing many challenges in Jordan [1]. The improvement in the healthcare facilities including dietitians is still at a slow pace. Little interest has been given to dietitians, and the employment opportunities are regarded very poor despite the inadequate number of dietitians in the healthcare sector. Training chances for the employed dietitians is little, the absence of appropriate rules enforcing dietitians’ functions within the healthcare team. Furthermore, dietitians’ formal duties are not adequately defined, their efforts are underappreciated, they are unable to participate in the decision-making processes, the lack of harmonious relationships between physicians and dietitians, low salary and other problems are still persisting in the Jordanian community [1].

Therefore, based on the introduced evidence and as there was no previous study reported regarding the job satisfaction among dietitians, it is hypothesised that the dietitians in Jordan would be dissatisfied regarding their job, the job satisfaction could be related to the demographic characteristics of the dietitians and job satisfaction (overall and its domains) could be correlated with the intention to stay in the job.

Consequently, this study aimed to (1) assess job satisfaction among the dietitian in Jordan, (2) identify the factors that could affect the job satisfaction of dietitians in Jordan, and (3) determine the correlation between the job satisfaction among the dietitians and their intention to stay in their job. This research will answer the following questions: what is the level of the job satisfaction among dietitians in Jordan?

what are the factors that influence dietitians’ job satisfaction? and is there any significant relationship between the job satisfaction and the intention to stay among the dietitians

2. Materials and methods

2.1. Study design and setting

A cross-sectional survey was designed to help assess the study’s aims. Strengthening the Reporting of Observational Studies in Epidemiology guidelines (STROBE) for the observational studies in epidemiology- nutrition were used in the study design structure [36]. This study was carried out between March 2021 and June 2021 in different healthcare places including hospitals (private and government) and private nutrition centres found in Jordan.

2.2. Study participants

The participants of this study were consisted of dietitians who worked in hospitals (public, private, and educational hospitals), sport centres, hotels, private clinics, food supply departments, and nutrition centres in Jordan. The convenience sampling method (non-probability sampling method) was used to recruit eligible dietitians. The inclusion criteria included dietitians working in Jordan with Jordanian nationality to reduce the study bias and social norms impact. This study did not include dietitians who worked in food services and food processing fields, as the job description were mostly related to food science and not nutrition field

2.3. Sample size

In the absence of the data that provide the actual numbers of employed dietitians, the sample size was detected by assuming that 50% of the subjects in the population have the factor of interest, thus, the study would require a sample size of 542 at a 98% level of confidence interval (CI), 0.5 expected proportion, and 0.5 precision or margin of error [37]. In other words, if we would select a random sample of 542 from a population and determine that 50% of subjects have the factor of interest, we would be 98% confident that between 45% and 55% of subjects in the population study have the factor of interest [37].

2.4. Data collection and study tools

Online web page questionnaire (appendix A) was sent to dietitians registered in the Agricultural Engineers Association. In addition, questionnaires were distributed via social media (Facebook, Twitter, and others) to dietitians who had a web page. A brief introduction showed the aims of the study, followed by a cover letter, consent sentence, and instructions on how to complete the survey. The main body of the questionnaire included three main parts: (1) Demographic characteristics of the participants and general questions related to the nature of work such as age, gender, nationality, working place, and experience (11 items). (2) The valid job satisfaction survey (JSS) [38] which was chosen as the most appropriate questionnaire from a range of available job satisfaction questionnaires. This questionnaire included well-structured and randomly ordered 36- items that measured nine domains of job satisfaction. Each item had four questions that described a potential factor that affects job satisfaction. The nine domains were: salary (payment), promotion, knowledge and skills, relationship with dietitians, relationship with other health professionals, job rewards, working environments, operating procedures (food service), and the nature of work. In the JSS part, the participants were asked to rate their responses by a 5-point Likert scale from “disagree very much” to “agree very much”. And the last part of the study survey

was (3) The intention to stay part which included 5 items. This part was designed with reference to Al-Hamdan et al. study [7].

2.5. Statistical analyses

The reliability and the validity of the study tool were performed. Cronbach’s alpha coefficient was used to check the consistency of the questionnaire results. Pearson’s correlation test was used to check the coefficient of stability, and back-translation method was used to confirm the content validity. The Shapiro-Wilks normality test was performed to check the normality of all data. The data was represented as mean and standard deviation (SD). The categorical data (socio-demographic characteristics of the participants) was described as n (%). The Kruskal–Wallis tests were used to determine if there were statistically significant differences between the socio-demographic characteristics of the participants and the job satisfaction. The resulting standardized scale of job satisfaction was ranged from 0 to 100. Job satisfaction was evaluated according to satisfaction scores, as recommended by COSTA et al. [11]. Individuals who obtained a score from 0 to 39.9% were classified as dissatisfied; a score from 40% – 59.9% was classified as neither dissatisfied nor satisfied, a score from 60% to 79.9% was regarded as satisfied, while a score from 80% to 100% was classified as very satisfied. A weighted least-squares regression (weighted linear regression) was performed to determine the factors associated with job satisfaction. Regarding the intention to stay section, the Spearman correlation coefficient (r^2) was performed to measure the strength and direction of the association/relationship between the intention to stay and the job satisfaction among the dietitians. Responses were directly exported from the Google sheets to the Statistical Package for Social Sciences (SPSS Inc., Chicago, IL, US), version 26.0, and the total job satisfaction and intention to stay, separately. The statistical significance level was assigned as p-value <0.05 at 95% CI.

Ethical consideration

The ethical approval to conduct this study was obtained from the Research Ethics Board, Petra University, Amman, Jordan (Grant number: Q1/2/2021). Participation in this study was voluntary. All participants have agreed on the consent form before answering the rest of the questionnaire. All data were treated with complete confidentiality.

3. Results

3.1. Psychometric analysis of the Arabic questionnaires

The JSS questionnaire was tested on a convenience sample of 35 dietitians by a pilot study. The pilot study took place in December 2020 till February 2021 to test the reliability and validity. Two weeks later, the dietitians were contacted again to retake the questionnaire (pre-/post-test reliability was performed). Overall, the construct reliability was confirmed via Cronbach’s alpha analysis and a test–retest method. The reliability at the level of a specific construct was as follows; Cronbach’s alpha was 0.91 for the job satisfaction part and 0.88 for the intention to stay part. The overall internal consistency and reliability were estimated and were considered of excellent and very good reliability, respectively. The test–retest reliability Pearson’s test was 0.89 and 0.99 for the job satisfaction part and the intention to stay part, respectively. The coefficient alpha result reflects excellent and adequate internal consistency.

Five nutritionists and dietitians from two hospitals located in the capital Amman (Jordan University Hospital and Hikma Modern Hospital) were consulted and asked to review the questionnaire in which they were able to comment and confirm the questionnaire’s content validity. The questionnaire was further edited based on the comments of these health professionals wherever applicable. Content validity of the questionnaire was assured by using the translation back-

translation method [39]. The questionnaire was translated from English to Arabic by a bilingual researcher (Arabic, English). A second bilingual researcher retranslated the questionnaire back from Arabic to English. The two English versions (original, translated-back translated) were then compared to ensure the correct meaning of the items. The accuracy was confirmed by a panel of five experts of nutrition and dietetics lecturers from Petra university, Amman, Jordan.

3.2. The socio-demographic characteristics of the dietitians

A total of 600 Jordanian dietitians (499 female and 101 male) participated in the current study. Table 1 shows the socio-demographic characteristics of these participants. The majority of the participants were 30 years of age or below (68.3%, n = 410) with an age mean of 30.05 ± 16.1 years. More than half of the participant were single (64.5%, n = 378), and around 77% of the participants held a BSc degree in nutrition. Moreover, more than half of the participants had a monthly salary of <500 JD (58.5%, n = 351). The workplace of the participants was mainly nutrition clinics (39.5%), nutrition services in sports centres and beauty clinics (26.7%), private hospitals (25.3%) and merely 8.5% worked in governmental hospitals. As for the experience’s years, most of the participants had 5 years or less experience. Furthermore, participants were predominantly single (64.5%, n = 387), and worked in a non-administrative job (77.2%, n = 463).

3.3. The total job satisfaction score of the dietitians

Job satisfaction scores among dietitians are shown in Table 2. The majority of the Jordanian dietitians were neither dissatisfied nor satisfied (69.8%, N = 418) with a mean of 48.3 ± 9.4 . Regarding the job satisfaction domains, the participants were neither dissatisfied nor satisfied with all domains with scores ranging from 40 to 59.9 except for the salary which was 33.9 (dissatisfied). The participants were neither dissatisfied nor satisfied with their job with a mean score of 58.7,

Table 1
The sociodemographic characteristics of the Jordanian dietitians, n = 600.

Variables	Subcategories	n	%
Gender	Female	499	83.2
	Male	101	16.8
Age (years)	<30	410	68.3
	30–40	166	27.7
	40 <	24	4.0
Status	Married	204	34.0
	Single	387	64.5
	Other	9	1.5
Monthly income (JD)	< 500	351	58.5
	500–700	150	25.0
	700 <	69	11.5
Qualification	Courses in Nutrition and Dieting	30	5.0
	Diploma in Nutrition	17	2.8
	BSc in Nutrition	464	77.3
	Master Nutrition	89	14.8
Workplace	private hospital	152	25.3
	Government hospital	51	8.5
	Nutrition clinics	237	39.5
	Nutritional services in sports centres and beauty clinics	160	26.7
Job Style	Full time	371	61.8
	Part time	229	38.2
Current Position	Non-administrative	463	77.2
	Administrative	137	22.8
Experience years	≤5 years	480	80.0
	≥6 years	120	20.0
Current Experience	≤5 years	525	87.5
	≥6 years	75	12.5

JD: Jordanian Dinar. BSc: Bachelor’s degree in nutrition

Table 2
Total job satisfaction categories for the Jordanian dietitians, n = 600.

Job satisfaction	n	%
Dissatisfied (0–39.9)	120	20.0
*Neither dissatisfied nor satisfied (40–59.9)	419	69.8
Satisfied (60–79.9)	61	10.2
Very Satisfied (80–100)	0	0

*Equivalent to slightly satisfied in similar studies [6,34].

followed by their relationship with the other dietitians (55.5), and the least score achieved was in the domain of recognition from the other health professionals (40.2). Despite scoring the least score, recognition from the other health professionals domain maintained within the neither dissatisfied nor satisfied score range (40.59.9) as shown in Fig. 1.

3.4. Relationship between the socio-demographic characteristics and job satisfaction among dietitians

Based on the univariate analysis, there were no significant differences in job satisfaction scores in relation to the measured socio-demographic characteristics, except for the monthly salary (p-value = 0.004), and workplace (p-value = 0.004) as shown in Table 3.

3.5. The association between the socio-demographic characteristics and job satisfaction among the dietitians

A weighted least-squares regression was run to predict job satisfaction score. The multiple regression model statistically significantly predicted job satisfaction score, $F(8, 592) = 2.432$, $p\text{-value} < 0.0001$, $r^2 = 0.02$. The salary is one out of seven variables added statistically significantly to the prediction, $p\text{-value} < 0.05$. Regression coefficients and standard errors can be found in Table 4. Participants who had higher monthly salary were 1.53 more likely to have a higher job satisfaction score compared to those of lower monthly salary (CL 95%, (0.503–2.55)).

3.6. The correlation between the job satisfaction domains and the intention to stay among dietitians

As shown in Table 5, there was a positive correlation between the overall total job satisfaction score and the intention to stay ($r^2 = 0.42$, $p\text{-value} \leq 0.001$). The intention to stay was also significantly correlated in a positive direction with most job satisfaction domains except with the knowledge and skills domain ($p\text{-value} = 0.224$). In other

Table 3
The bivariate relationship between the socio-demographic characteristics and job satisfaction for the Jordanian dietitians.

Variables		Means	P-value
Gender	Female	48.45 ± 9.4	0.224
	Male	47.30 ± 9.4	
Age (years)	< 30	48.15 ± 9.4	0.190
	30–40	48.90 ± 9.3	
	greater than 40	45.54 ± 9.5	
Status	Married	48.09 ± 9.4	0.966
	Single	48.35 ± 9.5	
	Other	47.76 ± 9.0	
Salary (JD/M)	< 500	47.20 ± 9.3	0.004
	500–700	49.81 ± 9.6	
	More than 700	49.22 ± 9.8	
Qualification	Courses in Nutrition and Dieting	47.92 ± 10.7	0.722
	Diploma in Nutrition	45.96 ± 9.4	
	BSc in Nutrition	48.31 ± 9.4	
	Master Nutrition	48.53 ± 9.3	
Working Place	Private hospital	48.95 ± 9.3	0.004
	Government hospital	44.21 ± 9.8	
	Nutrition clinics	47.61 ± 12.4	
	Nutritional services in sports centres and beauty clinics	49.46 ± 8.8	
Job Style	Full time	47.81 ± 9.4	0.064
	Part time	48.96 ± 9.3	
Current Position	Non-administrative	48.55 ± 9.2	0.122
	Administrative	47.25 ± 9.8	
Experience years	≤5 years	48.10 ± 9.5	0.624
	≥6 years	48.88 ± 9.1	
Current Experience	≤5 years	48.23 ± 9.3	0.985
	≥6 years	48.44 ± 9.9	

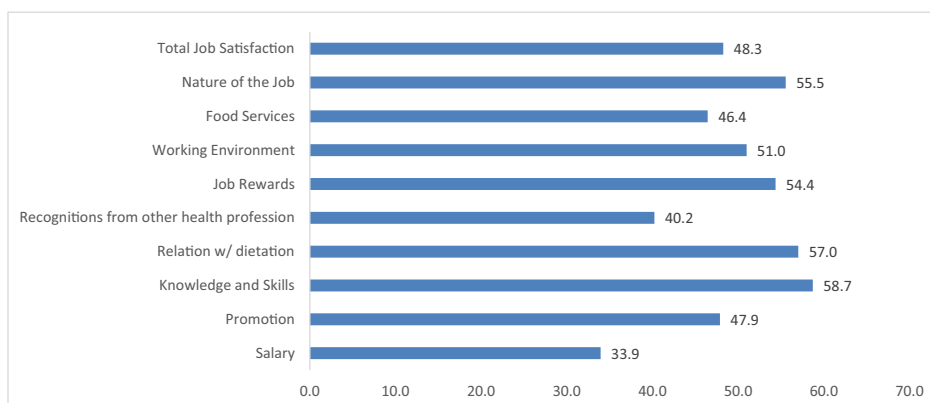
Note: Mann-Whitney Test; Kruskal-Wallis Test ($p \leq 0.05$). JD/M: Jordan Dinar per month.

words, as the total job satisfaction increased (totally and every domain separately except for the knowledge and skills domain), the probability of the intention to stay increased.

4. Discussion

To our best knowledge, this study is considered the first to investigate the factors affecting the job satisfaction and their relationship with the intention to stay among dietitians in Jordan.

Based on the study objectives, several significant key findings were noted and highlighted. First, the study findings showed that Jordanian dietitians were neither satisfied nor dissatisfied with their current position which was projected as the overall score of the job satisfaction domains collectively and separately, except for salary. Salary in this study was the sole and crucial predictor of job satisfaction among dieti-



0 to 39.9% were classified as dissatisfied; a score from 40% -59.9% was classified as Neither dissatisfied nor satisfied, from 60%-79.9% was satisfied, from 80%-100% was classified as very satisfied.

Fig. 1. The total Job satisfaction mean score and per domain for the Jordanian dietitians (n=600).

Table 4
Weighted linear regression of variables associated with job satisfaction levels for the Jordanian dietitians.

Variables	Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.	95.0% Confidence Interval for B	
	B	Std. Error				Lower Bound	Upper Bound
(Constant)	47.723	2.978		16.024	≤0.001	41.874	53.57
Age	0.007	0.024	0.012	0.295	0.768	-0.040	0.054
Gender	-1.270	1.033	-0.051	-1.230	0.219	-3.298	0.758
Status	1.350	0.842	0.073	1.603	0.109	-0.304	3.004
Salary	1.528	0.522	0.146	2.928	≤0.001	0.503	2.554
Education	-0.424	0.656	-0.027	-0.647	0.518	-1.712	0.863
Workplace	-0.116	0.249	-0.019	-0.468	0.640	-0.605	0.372
Experience	0.082	0.966	0.004	0.085	0.932	-1.814	1.979

Table 5
The correlation between the intention to stay and the total job satisfaction and its domains for the Jordanian dietitians.

	Total Job Satisfaction	Salary	Promotion	Knowledge and Skills	Working Environment	Food Services	Nature of the Job	Relationship with other dietitians	Recognitions from other health profession	Job Rewards
Correlation Coefficient	0.423**	0.248**	0.310**	0.050	0.333**	0.113**	0.317**	0.291**	0.222**	0.340**
Sig. (2-tailed)	≤0.001	≤0.001	≤0.001	0.224	≤0.001	0.006	≤0.001	≤0.001	≤0.001	≤0.001
N	600	600	600	600	600	600	600	600	600	600

cians in Jordan. Jordanian dietitians reported that their salary did not appropriately compensate for the time and effort spent in obtaining the knowledge and skills they acquire to perform their work efficiently. Beside salary, the work environment (workplace) domain also showed a significant relationship with the job satisfaction among dietitians in Jordan. Here, appropriate workload and the presence of human and nonhuman resources that ease the Jordanian dietitians work may have promoted higher job satisfaction score and vice versa. The second key finding in this study was related to the socio-demographic variables of the study’s participants and their possible association with the job satisfaction score. The univariate analysis reported that the overall score of job satisfaction was not related to any demographic variable except for workplace and the monthly salary, while the final model of the multivariate analysis kept only the salary as the solo associated factor (predictor) of job satisfaction among the Jordanian dietitians [34,40]. The third and last key finding of this study was the significant correlation detected between the overall job satisfaction score and the intention to stay. A higher total job satisfaction score indicated a higher possibility for Jordanian dietitians to stay in their current jobs. Moreover, each job satisfaction domain showed a significant positive correlation with intention to stay, except for the knowledge and skills domain which produced an insignificant correlation.

The health sector worldwide and in Jordan relay heavily on a complete comprehensive teamwork of medical professionals including dietitians [1,2,37]. Dietitians similarly to experts in other careers, are affected significantly by various factors influencing their job satisfactions and hence their intention to stay in the field of nutrition and dietetics. Numerous studies have reported a significant positive impact of job satisfaction among the employee and the institution members including dietitians [1,2,10,32,34,35]. Nevertheless, data exploring the factors influencing dietitians’ job satisfactions and their correlation(s) with intention to stay, particularly in Jordan, is lacking to date.

Collectively these results were similar to those reported by previous studies on job satisfaction among dietitians worldwide [6,34]. In the United States, clinical dietitians recorded the lowest overall job satisfaction compared to all practice areas [4]. Visser et al. also reported that 65.7% of the registered South African dietitians had slight job satisfaction toward their current job [6]. On the contrary, Ibrahim et al. (2019) reported that more than half of the dietitians in Khartoum State, Sudan had moderate job satisfaction with their jobs [34]. These studies demonstrated that pay (salary), recognition by other healthcare team, and the opportunity for promotion were the

key factors involved in the total job satisfaction score [2,4,6,11,32–35]. Evidence also demonstrated that different conditions co-existing in different workplaces may influence the level of job satisfaction. Indeed, conditions such as workload and human and nonhuman resources availability did produce variable job satisfaction score favoring those with appropriate workload and presence of resources that facilitates dietitians’ work [11,33,41,42]. Moreover, numerous studies have shown that job satisfaction is one crucial drive of retention and attrition among medical personnel including dietitians [33,43]. Theoretically, the relationship between job satisfaction and the retention or intention to a workplace goes side by side with economic and psychological facets that support the concept that once an individual is satisfied with his/her job, they tend to stay and are unlikely to leave their satisfying workplace [44]. Salary, promotions, and financial rewards are major economic and psychological facets that contribute to the job satisfaction status rendering the retention attitude of dietitians towards their job. Chin et al. (2012), Costa et al. (2019), and Ibrahim et al. (2019) showed a positive correlation between the level of salary, opportunities for promotion /career advancement, and the presence of work incentives in the form of financial rewards with both job satisfaction score and the intention to stay for dietitians in South Korea, Brazil, and Sudan, respectively [11,34,45]. The nature of a job and working environment are also among other job satisfaction domains that contribute profoundly to the retention / intention of dietitians in their jobs [11,27,34]. Peter et al. (2018) reported a wide difference in job satisfaction between the dietitians working in the private sector and those who worked in the public/ governmental sector favoring the former over the latter [41]. Negative perceptions toward working in the public/ governmental sector were associated with shortages in human resources and equipment, lack of sufficient technology and incentives [33,43]. Costa et al. (2019) proposed that many dietitians were dissatisfied with their work environment due to their heavy workload that disturbed their work-life balance and the extra activities that they had to perform outside the scope of their work. The authors also pointed out that dietitians who worked in the field of food services were less satisfied than their colleagues who worked in hospitals and clinics. The reason behind such dissatisfaction is due to the high professional demands of the foodservice establishment that require strenuous professional and legal obligations by dietitians in this field [11,34,41]. The negative facets of work environment and job nature causes the dietitians’ dissatisfaction and demotivation toward their job, and their possible migra-

tion from one sector/ field to another once the opportunity is available. Indeed, our data are in alignment with the previous studies, in which a positive work environment, precise nature of the job scope, and fields other than food services were the mediators for the intention to stay among dietitians in Jordan. The relationship with other dietitians, professional recognition by other healthcare providers, and psychological rewards of jobs are among the vital psychological facets influencing the job satisfaction among dietitians in Jordan and their intention to stay/ leave their jobs [1,35]. High competition, dishonesty, and the absence of teamwork spirit have been reported to be the type of relationship co-existing between dietitians in South Africa [41]. Such relationships can lead to unpleasant feelings among dietitians that result in job dissatisfaction which ultimately will cause them to leave the unfriendly work environment. Our results did show such positive significant correlation between the relationship with other dietitians and the intention to stay. A study was done by Ahmad (2014) further reported other major deterrents affecting the performance of dietitians in Jordan, hence decreasing the job satisfaction and the intention to stay [1]. These included inadequate recognition of dietitians' therapeutic roles, their inharmonious relationship with physicians, and lack of job rewards expressed by ungrateful and non-compliant patients. Our results were in alignment with these reports in which participants showed a significant positive correlation between their intention to stay due to their job satisfaction scores which are associated with a positive relationship with their other colleagues in the same field ($p \leq 0.001$), recognition by other healthcare providers ($p \leq 0.001$), and other rewards of jobs such as grateful and compliant patients ($p \leq 0.001$).

The key findings of this study could have major consequences for better understanding, improving, and enhancing job satisfaction among Jordanian dietitians, as well as increasing the dietetic literature on this topic. The formulation of suggestions and guidelines based on the specific job satisfaction domains that have a substantial impact on the job satisfaction status of dietitians in Jordan allows policymakers to consider initiatives such as re-evaluation of wage levels, advocating the employment of licensed dietitian in health sectors, strengthening dietitian-to-dietitian and dietitian-to-other-healthcare-provider collaboration. Improving such conditions will result in a stronger healthcare system in Jordan, at a time where nutrition and food therapy is no longer a supplemental health assistance, but rather a fundamental, critical, and important component of the healthcare system.

More research is needed to be carried out to assess the job satisfaction among Jordanian dietitians globally. Future focus group research among Jordanian dietitians should be conducted to gather additional information about the levels of job satisfaction. Other allied health professionals could be investigated and compared to Jordanian dietitians' job satisfaction scores. Moreover, because job satisfaction has such a significant impact on the quality of work performance, researchers point out the importance of implementation of specific continuous training program that keep dietitians motivated, revising additional promotions and income levels given for Jordanian dietitians, and the improvement of the food services sector, that should be considered by policymakers (e.g. the Ministry of Health).

4.1. Strength and limitations

A number of strength points were found in this study. Firstly, the study's sample was sufficient to yield a precision of 50% of the subjects that had the factor of interest when estimating a 98% CI for an unknown proportion. Secondly, this study is the first to validate an Arabic version of a job satisfaction survey (JSS) assessing the job satisfaction among Arab speaking dietitians. Thirdly, the online survey method used permitted participants to complete the survey at their leisure and eliminated any bias caused by the researcher's presence during data collection. Moreover, this method enabled the reach of a higher number of convenience sample of dietitians at different geo-

graphical places, hence, reducing cost and time consumed for data collection compared to that of conventional methods. These strengths enabled a better representation of the Jordanian dietitians and the possible generalization of results. On the other hand, the limitations faced in this study were found mainly during the primary data collection. Statistical data regarding the actual figures of registered dietitians found in Jordanian Health Ministry and the Agricultural Engineers Association was lacking and incomprehensive.

5. Conclusion

Overall, the main significant key finding of the current study was that Jordanian dietitians were neither dissatisfied nor satisfied toward all job satisfaction domains except for salary. Socio-demographic variables showed insignificant correlation to the total job satisfaction except for the monthly income (salary and other sources) and the workplace. Furthermore, the intention to stay correlated positively and significantly with the total job satisfaction and with almost all individual domains of job satisfaction.

The identification of the possible factors that may have rendered the job satisfaction and in turn the intention to stay among Jordanian dietitians, not only affects the dietitians themselves, but the healthcare system in Jordan as a whole. Hence, the outcomes of this study look forward to recommending improvement of the healthcare policies related to dietitians as they play an undeniable crucial role within the healthcare system. The study also wishes to further draw the attention of both; researchers and decision-makers for the need to focus on what is happening in terms of dietitians' job policies in Jordan. The study also emphasizes on the need for fundamental reforms regarding dietitians' salary and the introduction of new regulations that support dietitians' vital role within the healthcare system in Jordan. Various actors (governmental as well as non-governmental) should be involved in acknowledging dietitians' roles, voicing their opinions, and strengthening the decisions given by dietitians to achieve the optimum health outcomes. The findings of the current study sets the path for additional investigations needed to underpin the exact factors affecting the job satisfaction among Jordanian dietitians, and to delineate the possible solutions in overcoming the feeling of dissatisfaction present among Jordanian dietitians and minimize their intention to leave.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgments

The authors would like to acknowledge the University of Petra, Amman, Jordan, for the ethical approval for this study. In addition, the authors would like to thank all volunteers who participated in this study and the undergraduate student Suha Husni Al-Baker for her effort in the data processing.

Availability of data and materials.

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

Sources of Support

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Authors' contributions

The study was conceived by the first author, who also analysed the data and oversaw the final content. The second author assisted with data collection and text preparation. The article was written by the third author, while the questionnaire design and statistical analysis were done by the fourth author. The final paper was approved by all authors.

Appendix A. . The study questionnaire

Question number	Section/ questions
A. Evaluation of the job satisfaction among the dietitians.	
Payment	
1	I feel I get paid affair salary for my work.
2	I receive overtime for extra work.
3	I feel satisfied if my salary increased.
4	I feel unappreciated by what I paid.
Promotion	
5	I am satisfied with my chance for promotion.
6	A little chance for promotion in my job.
7	Different job I can get chance for promotion.
8	If I do well, I will get promoted.
Knowledge and Skills	
9	My knowledge and skills increased by this job.
10	My job is meeting my expectation in skills.
11	I have enough time for counseling patients.
12	I have enough chance for training in dietitians.
Relationship with other dietitians	
13	Supervisor for a work well – done.
14	I am always informed about projects going on.
15	I feel threaded by fellow dietitians.
16	I feel my fellow dietitians are competitive.
Recognitions from other health profession.	
17	I receive recognition from non-dietitian's fellows.
18	Non–dietitians fellow show little interest my work.
19	I have good relationship with non-dietitians' fellow.
20	I enjoy work with other health profession.
Job Rewards	
21	I received recognition from patients.
22	I received recognition from non-dietitians' fellow.
23	I received recognition from dietitian's fellow.
24	My current job is rewarding.
Working Environment	
25	I work in a comfortable environment.
26	I feel restricted in my work due to limited resource.
27	I have the required equipment to work.
28	Technologies used in our workplace.
Food Services	
29	Food suitability are ensured for patients.
30	Food acceptability are ensured for patients.
31	Safety of food supply are grunted.
32	Financial pressure facing quality of food.
Nature of the Job	
33	I sometimes feel my job is meaningless.
34	My job is enjoyable.
35	I feel proud from my profession.
36	Supported from administration from innovation.
B. Evaluation of intent to stay at work.	
1	I plan to stay at my current job for as long as possible.
2	I will probably spend the rest of my career in this job.
33	Even if this job does not meet all my expectations, I will not leave this job.
4	No circumstances can make me leave my current job.
5	I plan to keep this business for 2–3 years.

References

- [1] Ahmad MN. The Changing Face of Nutrition and Dietetics in Jordan. *European Scientific Journal* 2014;10. <https://doi.org/10.19044/esj.2014.v10n33p>.
- [2] Abad-Jorge A, Butcher MF. Job Satisfaction and Professional Characteristics of Registered Dietitians. *Topics in Clinical Nutrition* 2016;31:134–46. <https://doi.org/10.1097/TIN.000000000000064>.
- [3] Mrayyan MT. Jordanian Nurses' Job Satisfaction and Intent to Stay: Comparing Teaching and Non-Teaching Hospitals. *J Prof Nurs* 2007;23(3):125–36. <https://doi.org/10.1016/j.profnurs.2006.12.006>.
- [4] Martin J, Javaherian-dysinger H. *Job Satisfaction Among Registered Dietitians in Various Settings in the United States*; 2018.
- [5] M Beer - Academy of management. Organizational size and job satisfaction. *JournalsAomOrg* 1994.
- [6] Visser J, Mackenzie A, Marais D. Job satisfaction of South African registered dietitians. *South African Journal of Clinical Nutrition* 2012;25(3):112–9. <https://doi.org/10.1080/16070658.2012.11734415>.
- [7] Al-Hamdan Z, Manojlovich M, Tanima B. Jordanian Nursing Work Environments, Intent to Stay, and Job Satisfaction. *J Nurs Scholarsh* 2017;49(1):103–10. <https://doi.org/10.1111/jnu.12265>.
- [8] Prakash Sharma J, Bajpai N. Salary Satisfaction as an Antecedent of Job Satisfaction: Development of a Regression Model to Determine the Linearity between Salary Satisfaction and Job Satisfaction in a Public and a Private Organization. vol. 18. 2011.
- [9] Abu Raddaha AH, Alasad J, Albikawi ZF, Batarseh KS, Realat EA, Saleh AA, et al. Jordanian nurses' job satisfaction and intention to quit. *Leadership in Health Services* 2012;25:216–31. <https://doi.org/10.1108/17511871211247651>.
- [10] Ali AJ. Part two national response to globalization organizational culture and job satisfaction in Jordan. *Journal of Transnational Management Development* 2001.
- [11] Costa RL da, Stangarlin-Fiori L, Bertin RL, Medeiros CO. Satisfaction of nutritionists who work in food service. *Revista de Nutrição* 2019;32. <https://doi.org/10.1590/1678-9865201932e180168>.
- [12] George J, Jones G, Sharbrough W. Understanding and managing organizational behavior. 2005.
- [13] Kianto A, Vanhala M, Heilmann P. The impact of knowledge management on job satisfaction. *Journal of Knowledge Management* 2016;20(4):621–36. <https://doi.org/10.1108/JKM-10-2015-0398>.
- [14] Rusbult CE, Farrell D. A Longitudinal Test of the Investment Model: The Impact on Job Satisfaction, Job Commitment, and Turnover of Variations in Rewards, Costs, Alternatives, and Investments. vol. 68. 1983.
- [15] Raziq A, Maulabakhsh R. Impact of Working Environment on Job Satisfaction. *Procedia Economics and Finance* 2015;23:717–25. [https://doi.org/10.1016/S2212-5671\(15\)00524-9](https://doi.org/10.1016/S2212-5671(15)00524-9).
- [16] de Vries RE, van den Hooff B, de Ridder JA. Explaining knowledge sharing: The role of team communication styles, job satisfaction, and performance beliefs. *Communication Research* 2006;33(2):115–35. <https://doi.org/10.1177/0093650205285366>.
- [17] Schwabe H, Castellacci F. Automation, workers' skills and job satisfaction. *PLOS ONE* 2020;15:e0242929. 10.1371/journal.pone.0242929.
- [18] Rue B. *Management, Skills and Application*, No Title. 10th ed. New York: McGraw-Hill/Irwin; 2003.
- [19] Locke EA. What is job satisfaction? Organizational Behavior and Human Performance 1969;4(4):309–36. [https://doi.org/10.1016/0030-5073\(69\)90013-0](https://doi.org/10.1016/0030-5073(69)90013-0).
- [20] Ledford GE. Comment: Happiness and productivity revisited. *Journal of Organizational Behavior* 1999;20(1):25–30.
- [21] Wilkinson AD, Wagner RM. Supervisory Leadership Styles and State Vocational Rehabilitation Counselor Job Satisfaction and Productivity. ERIC 1993.
- [22] Aslan I. Performance criteria and job life quality: Bingol city banking case. *Journal of Business & Management (COES&RJ-JBM)* 2017;5(4):167–87.
- [23] MOH. Ministry of Health 2014.
- [24] MOH. Ministry of Health (MOH) 2018.
- [25] Agricultural Engineers Association n.d. <https://www.google.com/search?q=ن قلب ن حرسين + الزر اعين &oq=&aqs=chrome.0.35i39i362l8...8.112507070j0j15&sourceid=chrome&ie=UTF-8>.
- [26] Mrayyan MT. Jordanian nurses' job satisfaction, patients' satisfaction and quality of nursing care. *Int Nurs Rev* 2006;53(3):224–30. <https://doi.org/10.1111/inr.2006.53.issue-310.1111/j.1466-7657.2006.00439.x>.
- [27] Krogstad U, Hofoss D, Veenstra M, Hjortdahl P. Predictors of job satisfaction among doctors, nurses and auxiliaries in Norwegian hospitals: relevance for micro unit culture. *Human Resources for Health* 2006;4:3. <https://doi.org/10.1186/1478-4491-4-3>.
- [28] Sveinsdóttir H, Biering Páll, Ramel A. Occupational stress, job satisfaction, and working environment among Icelandic nurses: A cross-sectional questionnaire survey. *Int J Nurs Stud* 2006;43(7):875–89. <https://doi.org/10.1016/j.ijnurstu.2005.11.002>.
- [29] Li J, Lambert VA. Job satisfaction among intensive care nurses from the People's Republic of China. *Int Nurs Rev* 2008;55(1):34–9. <https://doi.org/10.1111/inr.2008.55.issue-110.1111/j.1466-7657.2007.00573.x>.
- [30] Curtis EA. Job satisfaction: a survey of nurses in the Republic of Ireland. *Int Nurs Rev* 2007;54(1):92–9. <https://doi.org/10.1111/inr.2007.54.issue-110.1111/j.1466-7657.2007.00507.x>.

- [31] Lu H, While AE, Louise Barriball K. Job satisfaction among nurses: a literature review. *Int J Nurs Stud* 2005;42(2):211–27. <https://doi.org/10.1016/j.ijnurstu.2004.09.003>.
- [32] Dağ A, Çakır B, Kılınç FN, Türkmen EG. General profile and job satisfaction of Turkish dietitians. *Progress in Nutrition* 2019;21:531–6. 10.23751/pn.v21i3.7792.
- [33] Tapan B, Gayef A, Aydan E, Tapan TK, Elbay G. Perceptions of dietitians regarding job satisfaction and related factors. *British Journal of Medical and Health Research* 2017;4:2394–967.
- [34] Ibrahim NM, Khogali NA, Mahmoud H, Fatahi H. Job satisfaction of dietitians in government hospitals Khartoum State. *International Journal of Home Science* 2019;5:131–6.
- [35] Perdue C, Perdue C. Emotional Intelligence , Job Satisfaction , and Burnout for Dietitians This is to certify that the doctoral dissertation by. 2016.
- [36] Hörnell A, Berg C, Forsum E, Larsson C, Sonestedt E, Kesson A, et al. Perspective: An extension of the STROBE statement for observational studies in nutritional epidemiology (STROBE-nut): Explanation and elaboration. *Advances in Nutrition* 2017;8(5):652–78. <https://doi.org/10.3945/an.117.015941>.
- [37] Dhand N, Khatkar M. No Title. Statulator: An Online Statistical Calculator 2014. <http://statulator.com/SampleSize/ss1P.html>.
- [38] Spector PE. Measurement of human service staff satisfaction: Development of the Job Satisfaction Survey. *Am J Community Psychol* 1985;13:693–713. <https://doi.org/10.1007/BF00929796>.
- [39] Degroot AMB, Dannenburg L, Vanhell JG. Forward and Backward Word Translation by Bilinguals. *J Mem Lang* 1994;33(5):600–29. <https://doi.org/10.1006/jmla.1994.1029>.
- [40] Kessuwan K, Muenjohn N. Employee satisfaction: Work-related and personal factors. *Psychology* 2010.
- [41] Peter Ubel CMSB. Labor attrition of South African Dietitians. 2018.
- [42] Ko YJ, Choi JN. Overtime work as the antecedent of employee satisfaction, firm productivity, and innovation. *Journal of Organizational Behavior* 2019;40(3):282–95. <https://doi.org/10.1002/job.v40.310.1002/job.2328>.
- [43] Jin Y, Wang H, Wang D, Yuan B. Job satisfaction of the primary healthcare providers with expanded roles in the context of health service integration in rural China: a cross-sectional mixed methods study. *Human Resources for Health* 2019;17:70. <https://doi.org/10.1186/s12960-019-0403-3>.
- [44] Dhamija P, Gupta S, Bag S. Measuring of job satisfaction: the use of quality of work life factors. Benchmarking: An International Journal 2019;26(3):871–92. <https://doi.org/10.1108/BIJ-06-2018-0155>.
- [45] Keng TC, Nor NNAM, Ching YK. Turnover Intention and Job Satisfaction among Quantity Surveyors. *International Journal of Technology* 2018;9(8):1551. <https://doi.org/10.14716/ijtech.v9i810.14716/ijtech.v9i8.2760>.