

Stress, Work Overload, Burnout, and Satisfaction among Paramedics in Israel

Nurit Nirel, MA;¹ Rachel Goldwag, MA;¹ Zvi Feigenberg, MD;² David Abadi, BA;² Pinchas Halpern, MD³

1. Myers-JDC-Brookdale Institute
2. Magen David Adom (MDA)
3. Sourasky Medical Center

Correspondence:

Nurit Nirel, MA
Myers-JDC-Brookdale Institute
POB 3886, 91037 Jerusalem, Israel
E-mail: nuritn@jdc.org.il

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Abbreviations:

ALS = advanced life support
BLS = basic life support
EMS = emergency medical services
GSS = General Security Services
ICA = intensive care ambulance
MDA = Magen David Adom
MICU = mobile intensive care units

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Abstract

Introduction: The number of paramedics in Israel is increasing. Despite this growth and important role, the emergency medical organizations lack information about the characteristics of their work.

Objective: The objective of this study was to examine the characteristics of the paramedics' work, the quality of their working lives, the factors that keep them in the profession, or conversely, draw them away from it.

Methods: Cross-sectional study conducted through telephone interviews of a random sample of 50% of the graduates of paramedic courses in Israel (excluding conscripted soldiers).

Results: The factors that attract paramedics to the profession have much to do with the essence of the job—rescuing and saving—and a love of what it involves, as well as interest and variety. Pressures at work result from having to cope with a lack of administrative support, paperwork, long hours, imbalance between work and family life, and salary. They do not come from having to cope with responsibility, the pressure of working under uncertain conditions, and the sudden transition from calm situations to emergencies. Dissatisfaction at work is caused by burnout, work overload, and poor health. Physical and mental health that impedes their ability to work is related to a sense of burnout and the intention to change professions.

Conclusions: The findings about the relationships between health, job satisfaction, and burnout, coupled with the fact that within a decade, half of the currently employed paramedics will reach an age at which it is hard for them to perform their job, lead to the conclusion that there is a need to reconsider the optimum length of service in the profession. There also is a need to form organizational arrangements to change the work procedures of aging paramedics.

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Introduction

The profession of paramedic, which is relatively young in Israel, is moving forward rapidly. There are a number of reasons for its development: (1) the expansion of the emergency medical services (EMS) to keep pace with the growth and aging of the population and the associated types of morbidity; (2) the adoption of the US approach, which argues that paramedics perform as well as physicians during the initial intake of patients at the scene;¹ and (3) the training of paramedics for military purposes and the opening of an academic track to teach the profession.

The paramedic's work is characterized by sudden, sharp transitions from calm situations to emergencies, which often involve the resuscitation of people injured in incidents. The demands of the job may cause mental stress and work overload.² Moreover, the shorter the recovery time between one emergency and the next, and the greater the exposure to such situations, and the longer paramedics serve in the profession, the greater the burnout and decline in job satisfaction.^{3,4}

Work overload is one of the most important predictors of burnout,⁵ i.e., the sense of physical fatigue and mental exhaustion, lack of involvement in work, alienation, and the caregivers' dehumanization of the patients.⁶ Studies examining the quality of the working lives of paramedics have shown a high level of burnout related to the workload and work pressure.^{4,7}

The sense of overload and burnout may be related to dissatisfaction with the paramedic's particular place of work or with the profession itself. Job satisfaction is related to the intrinsic nature of the work, i.e., variety, the degree of autonomy, and the extent to which paramedics are able to use their skills and abilities.^{8,9} However, it also is related to other external factors, such as the number of hours worked per week, the employer, the opportunities for promotion, and the salary scale.^{9,10} Studies indicate that the sense of overload, burnout, and dissatisfaction in particular may affect a paramedic's decision as to whether or not to remain in the profession.¹¹⁻¹⁴

Moreover, there is evidence of high morbidity among ambulance personnel, notably skeletal and muscular disorders and mental health problems. Compared with other health service workers, morbidity among ambulance personnel often appears after a relatively short time in the job.^{2,15} Each of these factors is strongly related to the decision to leave the profession and the relatively high turnover rate of paramedics, which, in turn, affects the workforce supply.

Most paramedics in Israel are employed by Magen David Adom (MDA), the principal supplier of EMS. The paramedics at MDA are employed in a two-tier ambulance service: (1) Basic Life Support (BLS) ambulances, which are staffed by drivers (who also are medical assistants) and volunteers; and (2) Advanced Life Support (ALS) vehicles, which either are mobile intensive care units (MICUs) that are staffed by a physician, paramedic, and driver-medical assistant, or intensive care ambulances (ICAs) with a staff of two, at least one of whom is a paramedic, although neither is a physician. Most of the MDA rescue vehicles and workforce fall into the first category (BLS).

The second largest employer is the army, although most of the paramedics are conscripted soldiers. Shahal and Natali are two other organizations providing medical services, chiefly using telemedicine techniques. They have a small number of MICUs and employ only a small number of paramedics. Paramedics also are employed by private ambulance companies, some large companies, and the General Security Service (GSS).

Despite the increase in the number of paramedics and the importance of their work, especially during a time of violent conflicts and terrorist attacks, the EMS systems lack information that could help them reach decisions about employing this essential human resource. The goal of this study was to learn about the characteristics of paramedical work, the quality of the paramedics' working lives, and the factors that encourage them to stay in the profession or, conversely, deter them and cause them to leave the profession.

Methods

Study Design, Population, and Sample

A cross-sectional study of a random sample of graduates of paramedic courses was conducted (excluding conscripted

soldiers) regardless of whether or not they actually were working in the profession. At the time of the study, there were 868 such graduates of paramedic education and training courses. The study aimed to interview at least 50% of the study population.

Data Collection and Study Tools

The data were collected between November 2005 and February 2006 through a telephone survey using a closed questionnaire. Before the survey was conducted, a letter was sent to all eligible persons explaining the importance of the study. The respondents were assured that the researchers would respect the confidentiality of the answers to personal questions.

Study Variables

The questionnaire included demographic variables, type and date of training, information about the work: shifts, overtime, additional jobs, and number of weekly work hours. Respondents were queried about the state of their mental and physical health and their exposure to severe incidents.

In addition, 14 statements were included that related to situations that could constitute sources of pressure at work. The respondents were asked to what extent such situations bothered them in their work. A factor analysis classified the statements into four groups: (1) administrative aspects; (2) work schedule and the division of time between work and family; (3) coping with difficult situations; and (4) the burden of the job/the degree of responsibility.

Another set of questions addressed the factors that had attracted them to the job or to remaining in the profession for the long term. The questionnaire also included variables relating to turnover and leaving the profession, such as the intention to remain in the profession versus plans to leave. Variables relating to overload, burnout, and satisfaction were addressed using measures that had been used in studies on other workforce groups. The reliability of these assessments is described below.

Work Overload Measure

The Work Overload Measure was based on that of Franch *et al*, a Hebrew version of which previously had been used in Israel.¹⁶⁻¹⁸ The measure includes 10 items ($\alpha = 0.92$). The respondents graded their answers regarding the extent to which they feel overload on a scale of 1 ("not at all") to 5 ("to a very great extent"). Use of the measure sought to identify the respondents' sense of *quantitative overload* (i.e., the feeling they were working too fast or too hard, they had too much to do, or there was too much pressure on them) and *qualitative overload* (the feeling that they did not have the time for quality work, did not have the skills to perform assignments, that there was too much work for them to be able to do a good job). The paramedics were asked about what "usually happens" at work. They were not asked to differentiate between regular shifts and work during an incident. The work overload measure was categorized as: none at all (1.0-1.5), somewhat (1.51-2.5), to a moderate extent (2.51-3.5) and to a great extent (3.51-4.5).

Burnout Measure

The burnout assessments were based on an instrument constructed and validated by Melamed and Shirom,¹⁹

	Total n = 328	Gender		Age (years)		
		Men n = 286	Women n = 42	22–29 n = 116	30–39 n = 149	≥40 n = 63
Administrative aspects						
Routine	16	15	18	15	19	10
Monotony of paperwork	24	25	18	20	24	34
Lack of administrative support	49	48	56	50	51	40
Work hours						
Long hours	34	34	31	28	40	29
Shift work	23	23	21	18	27	24
Imbalance between working life and family/social life	33	35	23	31	34	36
Coping with difficult situations						
Exposure to traumatic incidents and human tragedies	10	11	0	4**	13	15
Relationship with emergency department staff	14	14	15	11	17	13
Physical dangers in the field	24	24	23	25	24	23
Coping with patients' families	11	13	10	11	10	13
Burden of the job						
Responsibility	10	11	8	10	10	11
Pressure of working properly in uncertain situations	9	9	13	7	11	8
Sudden transition from calm to emergency and having to perform resuscitation	4	3	4	2	4	7
Need to take charge and control during an incident	3	3	5	0	5	3

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Table 1—Stress factors at work that bother paramedics to “a great extent” or “a very great extent” (%)*

*The percentages do not add up to 100 because more than one answer could be given.

** $p < 0.05$ between the age groups

which includes 12 items regarding the respondents' emotional responses to their work, i.e., physical fatigue, cognitive burnout, and emotional exhaustion ($\alpha = 0.88$). The respondents graded their answers on a scale of 1 (“almost never”) to 5 (“almost always”). The factors were queried using three categories: (1) physical fatigue (six items), including the extent to which the respondents felt tired, had no strength, were physically drained, were “fed up” with the job, and were burned out ($\alpha = 0.89$); (2) cognitive burnout (three items)—the extent to which respondents felt they were thinking slowly, that it was hard for them to concentrate, that they were not clear headed ($\alpha = 0.84$); and (3) emotional exhaustion (three items), including the extent to which respondents felt it difficult to be sensitive and make an emotional investment in patients ($\alpha = 0.77$). The burnout assessments were categorized as: “almost never” (1.0–1.5), “occasionally” (1.51–2.5), “sometimes” (2.51–3.5), and “frequently” (3.51–4.5).

Job Satisfaction

Assessments of job satisfaction were based on an instrument developed by Warr *et al.*, which has been tested and validated for a range of occupations including physician, nurse, and

paramedical professions.^{20,21} The respondents' answers were graded on a scale of 1 (“utterly dissatisfied”) to 5 (“very satisfied indeed”). The queries included 15 items including intrinsic aspects of satisfaction with the job (e.g., satisfaction with the freedom to choose work methods, variety of the job, recognition for doing good work, amount of responsibility, and use of skills and abilities) as well as extrinsic aspects (e.g., working conditions, salary level, relationship with management, chances of promotion, job security, and work schedule). The measure had a reliability level of ($\alpha = 0.84$). The satisfaction measures were categorized as: “very dissatisfied” (1.0–2.5), “somewhat dissatisfied” (2.51–3.5), “rather satisfied” (3.51–4.5) and “very satisfied” (4.51–5.0).

Satisfaction with Choice of Profession

Satisfaction with the choice of profession was examined using an instrument comprising three questions devised by Williams *et al.*¹⁰ Respondents were asked to grade, the extent that they still found the profession attractive, whether they still would choose it as a career, and to what extent they would recommend it if consulted by aspiring paramedics ($\alpha = 0.72$) using a scale of 1–5. The level of sat-

Variable	Basis	Regression factor B	Odds ratio	Standard error
Age 30–39 years	Age 22–29 years	0.6	1.7	0.701–4.516
Age 40+ years	Age 22–29 years	0.9	2.4	0.737–7.506
Post high school education	High school education	0.8-	(2.5) 0.4	0.088–2.261
Academic education	High school education	0.2-	(1.3) 0.8	0.336–1.938
Currently studying	High school education	0.4	0.7	0.247–1.938
Female	Male	0.5-	(1.6) 0.6	0.184–2.091
Married	Not married	0.4-	(1.4) 0.7	0.247–1.938
Has children	No children	0.3	1.31	0.435–3.774
Works in central region	Does not work in central region	0.3-	(1.4) 0.7	0.370–1.477
Physical health limitations ²	No limitations	0.3	1.3	0.940–1.851
Emotional problems interfered with work ³	No interference	0.2	1.2	0.441–3.109
1–2 difficult incidents	0 difficult incidents	0.8	2.2	0.678–6.902
3–5 difficult incidents	0 difficult incidents	0.8	2.3	0.790–6.836
6+ difficult incidents	0 difficult incidents	1.5*	4.4	1.519–12.736
Works 61+ hours per week	Works <61 hours per week	0.3-	(1.4) 0.7	1.519–12.736
Low level of job satisfaction ⁴	High level of job satisfaction	0.3	1.3	0.494–3.397
High level of burnout ⁵	Low level of burnout	2.2**	9.3*	4.081–21.461
Constant		3.5**	0.3	

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Table 2—Variables predicting high level of overload¹—Logistic regression (n = 328)

* $p < 0.05$, ¹>2.5 on the job overload measure, ²“Yes” to “Has your physical health impeded your ability to perform your work?”, ³Emotional problems had impeded their ability to work “some of the time,” “most of the time,” or “all of the time” during the past month, ⁴<3.5 on the job satisfaction measure, ⁵>2.5 on the job burnout measure

satisfaction with choice of profession was categorized as “very low” (1.0–2.5), “low” (2.51–3.5), “moderate” (3.51–4.5), and “high” (4.51–5.0)

Statistical Processing

The statistical processing of the survey responses was conducted using the SPSS program [SPSS version 13.0, SPSS Inc., Chicago, IL]. The dependency among nominal variables was examined using a chi-square test. The significance of the difference between the averages of the quantitative variables was examined using a Student's *t*-test. The significance of the independent effect of the variables was examined by a multivariate analysis (logistic regression) and *t*-test. The answers to the open questions were processed quantitatively, then classified by category, and the percentage of respondents who responded to a particular category was calculated. Some of the respondents provided more than one answer, therefore, the total percentages exceeded 100%.

Results

Approximately 100 paramedics complete the certification training courses every year, and at the time of the study, 1,000 paramedics (including conscripted soldiers) had completed courses and qualified. The study sample included 578 graduates (approximately 70% of all listed). The response rate was 88%. Two percent refused to be interviewed. A further 3% were living abroad and unavailable. Six percent were not found and 1% could not be interviewed for other reasons. A total of 509 people were interviewed (59% of the study population). Altogether 64% of the course graduates currently are working as paramedics in the civilian sector, 20% have done so in the past, but currently are not working in the profession, and 16% are course graduates who never have worked as paramedics in the civilian market.

The average age of paramedics working as paramedics is 34 years (more than half >30 years). Most are male (90%),

Variable	Basis	Regression factor B	Odds ratio	Standard error
Age 30–39 years	Age 22–29 years	0.1-	(10.0) 0.9	0.325–2.543
Age 40+ years	Age 22–29 years	0.5-	(1.6) 0.6	0.149–2.468
Post-high school education	High school education	0.3	1.4	0.220–8.564
Academic education	High school education	0.2	1.2	0.376–3.760
Currently studying	High school education	0.8	2.3	0.675–7.509
Female	Male	0.1-	(1.1) 0.9	0.239–3.108
Married	Not married	0.1-	(1.1) 0.9	0.297–2.744
Has children	No children	0.2	1.2	0.352–3.837
Works in central region	Does not work in central region	0.5	1.6	0.699–3.531
Physical health limitations ²	No limitations	0.4*	1.6	1.053–2.238
Emotional problems interfered with work ³	No interference	1.9**	6.7	2.418–18.717
1–2 difficult incidents	0 difficult incidents	0.2-	(1.2) 0.8	0.235–2.761
3–5 difficult incidents	0 difficult incidents	0.4-	(1.0) 1.0	0.330–2.820
6+ difficult incidents	0 difficult incidents	0.9-	(2.5) 0.4	0.113–1.230
Works 61+ hours per week	Works <61 hours per week	0.4	(0.6) 1.5	0.566–3.972
High level of overload ⁴	Low level of overload	2.2**	9.4	3.982–22.107
Low level of job satisfaction ⁵	High level of job satisfaction	1.3*	3.7	0.797–17.592
Constant		6.7**	0.01	

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Table 3—Variables predicting high level of burnout¹—Logistic regression (n = 328)

* $p < 0.05$; ** $p < 0.01$; ¹>2.5 on the general burnout measure; ²Replied “yes” to: “Has your physical health impeded your ability to perform your work?”; ³Emotional problems had impeded their ability to work “some of the time,” “most of the time,” or “all of the time” during the past month; ⁴>2.5 on the work overload measure; ⁵<3.5 on the job satisfaction measure

Israeli-born (86%), and Jewish (95%). Almost half have a university degree. Most (80%) have been working for >10 years in the profession, and 87% for MDA. Seventy-five percent have tenure at their place of work. The main role of the majority is an ICA paramedic (50%) or MICU paramedic (33%). A total of 7% reported either that they had management positions as paramedics, or that their main job was in a different role, such as ambulance driver or dispatcher. On average, they work 4.2 weekly shifts of eight hours as ICA paramedics. In addition, many work additional shifts, for example: as ambulance driver, medical assistant, dispatcher, trainer, or instructor, accumulating, on average, up to seven eight-hour shifts per week. When asked, the respondents reported that including shift work, overtime, and additional jobs, they work an average of 62 hours per work.

Among respondents who no longer work as paramedics in the civilian sector, the average age on leaving the profes-

sion was 32 years. Approximately 80% are male, most of them Israeli-born, and all of them Jewish. Fifty-six percent were married when they left the profession and 34% had a university degree at the time of leaving the profession. On average, they had worked five years as paramedics in the civilian sector. Among those currently not working as paramedics, 6% of the respondents now have management positions at an EMS organization. These respondents had worked as paramedics for an average of 8.5 years.

Factors Encouraging Paramedics to Work/Remain in the Profession
Respondents actively working as paramedics were asked what motivated them to remain in the profession. Forty percent mentioned interest and variety, noting that “the action and the adrenaline from working under pressure” kept them in the job. Thirty-four percent reported that the ability to help people and save lives was what had attracted

Variable	Basis	Regression factor B	Odds ratio	Standard error
Age 30–39 years	Age 22–29 years	0.1	1.1	0.451–2.502
Age 40+ years	Age 22–29 years	0.7-	(2.0) 0.5	0.172–1.312
Post-high school education	High school education	0.2	1.3	0.327–4.898
Academic education	High school education	0.3	1.3	0.594–2.892
Currently studying	High school education	0.3	1.2	0.495–3.130
Female	Male	0.4	1.4	0.463–4.451
Married	Not married	0.3	1.4	0.554–3.438
Has children	No children	0.7-	(2.0) 0.5	0.192–1.312
Works in central region	Does not work in central region	0.2	1.2	0.648–2.249
Physical health limitations ²	No limitations	0.1*	2.7	1.428–4.992
Emotional problems interfered with work ³	No interference	0.5	1.7	0.425–6.650
1–2 difficult incidents	0 difficult incidents	0.3	1.4	0.575–3.419
3–5 difficult incidents	0 difficult incidents	0.3	1.3	0.546–3.163
6+ difficult incidents	0 difficult incidents	0.0	1.0	0.419–2.392
Works 61+ hours per week	Works <61 hours per week	0.1-	(1.0) 1.0	0.467–2.010
High level of overload ⁴	Low level of overload	0.3	0.5	0.524–3.658
Low level of burnout ⁵	High level of burnout	1.5*	4.5	0.963–21.012
Constant		-3.5**	0.3	

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Table 4—Variables predicting low level of job satisfaction¹—Logistic regression (n = 328)

* $p < 0.05$; ¹<3.5 on the satisfaction measure; ²“Yes” to the question: “Has your physical health impeded your ability to perform your work?”; ³Emotional problems had impeded their ability to work “some of the time,” “most of the time,” or “all of the time” during the past month; ⁴>2.5 on the work overload; ⁵>2.5 on the job burnout

them to the profession. Thirty-two percent noted satisfaction and feedback from patients, and 25% mentioned qualities such as “responsibility”, “the challenge”, and “working with people” as factors that affected them. Other factors mentioned were love of the profession (19%), their colleagues (6%), the actual place of work/a sense of belonging (13%), and a sense of vocation (4%). Ten percent said that they remained in the profession out of habit or that there was nothing to keep them in it.

An open question asked what an organization needed to offer if they were to remain in the profession for a long time. More than 60% of the respondents said that the conditions and salary were the most important factors—they gave specific answers and spoke of “the need for appropriate pay, the need for recognition of academic degrees, and a wage scale befitting the profession (not based solely on seniority).” They also mentioned the need for financial security and social benefits. Thirty-seven percent said pro-

motion was important, and 31% said that management backing was important, noting “good and reliable organizational culture, management that trusts its employees, good employer-employee relations, efforts to solve problems, uniform procedures for all MDA stations in the country, a supportive environment, appreciation, recognition, and feedback.” They also noted the need for professional development, including in-service training and the importance of having the profession recognized by the public and included in the law. The subject of early retirement, which was related to improved physical conditions and the need to take pressure off older paramedics, also came up. Each of these items was noted by a small percentage of the respondents.

Exposure to Severe Incidents

On average, the respondents had provided treatment at five particularly grueling incidents in the previous six months. Twenty-three percent reported one or two such incidents, a

Variable	Basis	Regression factor B	Odds ratio	Standard error
Age 30–39 years	Age 22–29 years	0.25-	(1.4) 0.7	0.390–1.539
Age 40+ years	Age 22–29 years	0.49-	(1.6) 0.6	0.246–1.522
Post-high school education	High school education	0.1-	(1.1) 0.9	0.289–3.031
Academic education	High school education	0.1-	(1.1) 0.9	0.440–1.890
Currently studying	High school education	0.4	1.6	0.699–3.467
Female	Male	0.4-	(1.6) 0.6	0.248–1.711
Married	Not married	0.5	1.6	0.758–3.465
Has children	No children	0.2-	0.8	0.382–1.827
Works in central region	Does not work in central region	0.7-*	(2.0) 0.5	0.298–0.875
Physical health limitations ¹	No limitations	0.1	(0.8) 1.2	0.879–1.611
Emotional problems interfered with work ²	No interference	0.1	1.1	0.404–2.892
1–2 difficult incidents	0 difficult incidents	1.1-*	(3.3) 0.3	0.145–0.725
3–5 difficult incidents	0 difficult incidents	0.6-	(2.0) 0.5	0.259–1.141
6+ difficult incidents	0 difficult incidents	0.9-*	(2.5) 0.4	0.197–0.893
Works 61+ hours per week	Works <61 hours per week	0.0	1.0	0.521–1.919
High level of overload ³	Low level of overload	0.2	(1.0) 1.2	0.558–2.564
Low level of burnout ⁴	High level of burnout	2.4**	11.3	4.234–30.067
Tenure		0.1-	0.9	

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Table 5—Variables predicting low level of satisfaction with choice of profession—Logistic regression (n = 328)

* $p < 0.05$; ¹Replied “yes” to: “Has your physical health impeded your ability to perform your work?”; ²Reported emotional problems had impeded their ability to work “some of the time,” “most of the time,” or “all of the time” during the past month; ³>2.5 on the work overload measure; ⁴>2.5 on the job burnout measure

further 26% reported three to five, 18% spoke of 6–10, and 11% spoke of ≥ 11 . The other 23% said there had been no such grueling incidents during that time period.

The particularly difficult incidents most frequently noted were those involving children or young people, including deaths, resuscitations, suicides, and accidents involving children (56%). Forty percent of the respondents also noted accidents (e.g., road traffic crashes, falls, and drowning), coping with dilemmas and professional difficulties, difficult social cases, treating patients under difficult conditions, and severe incidents involving the resuscitation or death of older people. Sixteen percent of the respondents mentioned disasters and terrorist attacks, including Qassam rocket strikes. Other categories of difficult events included treating people they knew, suicides, treating patients in front of other people, and treating the elderly. With regard to the frequency of difficult incidents, more than half the respon-

dents reported difficult cases occurring from once every eight days to once a month.

Sources of Stress

Of all respondents, half mentioned lack of administrative support and 24% mentioned monotonous paperwork—the administrative aspects of work—as aspects that bother them greatly. Thirty-four percent mentioned long hours, and 33% mentioned the imbalance between work and family/social life—both connected to work hours—bothered them greatly. Additionally, 24% noted the same about physical danger at the site. In contrast, a relatively low percentage said that issues connected with the job, such as the level of responsibility (10%), pressure of working in uncertain situations (9%), sudden transition from calm to emergency and having to perform resuscitation (4%), or the need to take charge during an incident (3%) bothered them greatly.

Variable	Basis	Regression factor B	Odds ratio	Standard error
Age 30–39 years	Age 22–29 years	1.1-**	(3.3) 0.3	0.16–0.70
Age 40+ years	Age 22–29 years	2.9-**	(16.6) 0.06	0.02–0.16
Post-high school education	High school education	0.5-	(1.7) 0.6	0.17–2.13
Academic education	High school education	0.5	1.7	0.75–3.65
Currently studying	High school education	0.9*	2.5	1.03–5.86
Female	Male	0.4	1.5	0.54–4.00
Married	Not married	0.7	1.1	0.48–2.36
Has children	No children	0.2	1.2	0.54–2.83
Works in central region	Does not work in central region	0.3-	0.8	0.43–1.35
Physical health limitations ¹	No limitations	0.1-	0.9	0.74–1.31
Emotional problems interfered with work ²	No interference	0.7	1.9	0.66–5.69
1–2 difficult incidents	0 difficult incidents	0.005-	0.9	0.42–2.35
3–5 difficult incidents	0 difficult incidents	0.07-	0.9	0.40–2.14
6+ difficult incidents	0 difficult incidents	0.32-	0.7	0.32–1.65
Works 61+ hours per week	Works <61 hours per week	0.6-	(2.0) 0.5	0.27–1.07
High level of job satisfaction (measure) ³	Low level of job satisfaction	1.4**	4.0	1.89–8.60
Low level of overload (measure) ⁴	High level of burnout	0.4	1.6	0.68–3.54
High level of burnout (measure) ⁵	Low level of burnout	1.4**	3.9	1.46–10.64
Constant		1.1-	0.3	

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Table 6—Variables predicting intended career change—Logistic regression (n = 328)

* $p < 0.05$; ** $p < 0.01$; ¹“Yes” to: “Has your physical health impeded your ability to perform your work?”; ²Reported that emotional problems had impeded their ability to work “some of the time,” “most of the time,” or “all of the time” during the past month; ³>3.5 on the job satisfaction; ⁴>2.5 on the work overload; ⁵<3.5 on the job burnout

With regard to exposure to traumatic events and tragedies, statistically significant differences were found by age. More (15%) paramedics ≥ 40 years of age said that such exposure bothered them to a “great” or “very great” extent than did their younger colleagues, those aged 22–29 (4%). With regard to other factors, no significant differences were found by gender and/or age (Table 1).

When the respondents were asked in an open question what bothered them the most, they noted inadequate financial remuneration, insecure work relations, the lack of administrative support, and the imbalance between work and family/social life.

State of Health

Almost all (98%) said they were in good general health. However, 69% of the respondents reported at least one phys-

ical problem, such as hypertension, pain in the lower back, neck, or joints, and other forms of pain. A further 21% reported that physical problems impeded their performance. Furthermore, 5% reported that their physical health interfered with regular work all or most of the time and another 10% said that their physical health interfered with their work some of the time. One-third of the interviewees said that emotional problems interfered with their work to some extent, 4% reported that emotional problems interfered all or most of the time, and 7% said that emotional problems interfered some of the time. Twenty-two percent reported that they interfered with their regular work only occasionally.

Among the former paramedics interviewed, approximately 60% reported that they were suffering from at least one physical problem when they left the profession. Furthermore, 22% of them said that their physical health at

the time impeded their ability to do their job, and 15% said that their ability to do their job was impeded by emotional problems.

Work Overload

Nineteen percent of the paramedics feel overload to a moderate or great extent. A larger percentage of paramedics who have tenure reported overload (22%) than those employed on an hourly basis (10%). The multivariate analysis revealed that the significant predictors of overload at work are burnout and six and above particularly difficult incidents experienced by the paramedics during the six months prior to the survey (Table 2).

Burnout

Sixteen percent of the paramedics in the study reported burnout by the overall burnout measure. When each aspect of burnout was examined separately, it was found that a relatively high percentage (35%) had reported burnout in the form of physical fatigue, compared with lower percentages who reported cognitive burnout (7%) and emotional exhaustion (9%). The predictors of burnout at work (the overall measure) are a sense of a high level of overload at work, reports that emotional problems interfered with work, a low level of satisfaction, and reports of physical health impeding work performance (Table 3).

Job Satisfaction

Twenty-two percent of the paramedics reported that they were "very satisfied" or "very satisfied indeed" with their work. The significant predictors of a low level of satisfaction with the job are burnout at work and reports of being impeded by physical health (Table 4).

Satisfaction with Choice of Profession

The degree of the correlation between the variables, $r = 0.23$, indicates that the two measures are assessing different variables. Approximately 60% of the respondents reported a high or very high level of satisfaction with the profession.

A low level of satisfaction with choice of profession was 11 times higher among paramedics with a high level of burnout at work than among those with a low level of burnout. In contrast, working in the center of the country and experiencing a particularly high number of severe incidents in the previous six months was a predictor of a high level of satisfaction with the profession (Table 5).

Variables Predicting Intended Career Change

The likelihood of paramedics 30–39 years of age noting that they had no intention of changing profession was three times higher than among their 22–29-year-old colleagues and of those ≥ 40 years of age (17 times greater than among their colleagues aged 22–29 years). In addition, the likelihood of intending to change profession is high among paramedics who feel a high degree of burnout, those who are dissatisfied with their work, and those who are currently studying for an academic degree (Table 6).

Discussion

The factors that attract paramedics to the profession are closely associated with the nature of the work (help, the chance to rescue people, love of the profession, interest, and variety). This is borne out also by the finding that providing treatment at the scene of severe incidents contributes to a great sense of satisfaction. In contrast to findings from other studies,^{3,22} coping with the responsibility, with the pressure of working under conditions of uncertainty and on the scene at serious incidents, as well as the sudden transition from calm to emergency are not perceived as factors causing stress at work. Furthermore, the exposure to difficult incidents is perceived to be part of the job, and even though it contributes to a sense of overload, it makes a positive contribution to the paramedics' satisfaction with their choice of profession. Stress at work is caused mainly by administrative factors: lack of support from their superiors, too much paperwork, too much overtime, imbalance caused between work and family life, and low pay. This is something that paramedics in Israel have in common with their colleagues elsewhere.^{22–25} In order to keep this workforce in the profession, thought should be given to improving these aspects of the job.

The correlation between physical and mental health and job satisfaction and burnout, and the fact that within a decade, half the paramedics currently employed will be relatively old for the job, all compel serious consideration of the optimum length of service in the profession. Although to date, there has been no open discussion of the issue, most key personnel (e.g., senior directors and managers) in EMS in Israel agree that paramedics should not continue working after 40–45 years of age. This is based on the evidence of the physical difficulty that the job entails and the emotional burnout it causes. However, the study findings indicate that it is the older members of the workforce who tend to stay at their place of work and do not consider a change of career. The workforce currently is relatively young, partly because the profession in Israel is young—it has existed only for some 20 years. This means that the EMS has not yet had to cope with vast cohorts of older workers. The current solutions, including transferring paramedics into management positions in the organization or moving them into other positions at the organizations, will be insufficient when the number of older workers reaches larger proportions. This is chiefly because there are a limited number of management positions within each organization. Furthermore, hardly any promotion tracks do not involve practical work in the field.

Conclusions

The EMS system should be aware of and ready to cope with large numbers of older paramedics. In addition to the need to reconsider the optimum length of service in the profession, there also is a need to work out possible organizational arrangements that merit serious examination and research to change the work procedures of aging paramedics.

References

1. Pozner CN, Zane R, Nelson SJ, Levine M: International EMS systems: The United States: Past, present and future. *Resuscitation* 2004;60(3):239–244.
2. Okada N, Ishii N, Nakata M, Nakayama S: Occupational stress among Japanese emergency medical technicians: Hyogo prefecture. *Prehospital Disast Med* 2005;20(2):115–121.
3. Murphy SA, Beaton RD, Pike KC, Cain KC: Firefighters and paramedics: Years of service, job aspirations, and burnout. *AAOHN Journal* 1994;42(11):534–540.
4. Alexander DA, Klein S: Ambulance personnel and critical incidents, impact of accidents and emergency work on mental health and emotional well-being. *British J Psychiatry* 2001;178:76–81.
5. Schaufeli W, Buunk BP: Burnout: An Overview of 25 Years of Research and Theorizing. In: Schabracq MJ, Winnbust JAM, Cooper CL (eds), *The Handbook of Work and Health Psychology*, 2nd Edition. West Sussex, England: Wiley, 2003, pp 383–429.
6. Maslach C: *Burnout: The Cost of Caring*. Englewood Cliffs, NJ: Prentice Hall, 1982.
7. Vettor SM, Kosinski FA: Work-stress burnout in emergency medical technicians and the use of early recollections. *Journal of Employment Counseling* 2000;37(4):216–228.
8. Landon BE, Reschovsky J, Blumenthal D: Changes in career satisfaction among primary care and specialist physicians, 1997–2001. *JAMA* 2003;289(4):442–99.
McMurray JE, Williams E, Schwartz MD, Douglas J, Van Kirk J, Konrad R, Gerrity M, Bigby JA, Lizer M: Physician job satisfaction, developing a model using qualitative data. *J Intern Med* 1997;12:711–714.
10. Williams ES, Konrad TR, Lizner M, Mcurray J: Physician practice and patient characteristics related to primary care physicians physical and mental health: Results from the physician worklife study. *Health Serv Res* 2002;37(1):121–143.
11. Judge TA, Watanabe S: Another look at the job satisfaction-life satisfaction relationship. *J Appl Psychol* 1993;6:934–948.
12. Judge TA: Does affective disposition moderate the relationship between job satisfaction and voluntary turnover? *J Appl Psychol* 1993;3:395–401.
13. Leong CS, Furnham A, Cooper CL: The moderating effects of organizational commitment on the occupational stress outcome relationship. *Human Relation* 1996;49:1345–1363.
14. Cooper CL, Rout U, Faragher B: Mental health, job satisfaction, and job stress among general practitioners. *BMJ* 1989;298(6670):366–370.
15. Rodgers LM: A five year study comparing early retirements on medical grounds in ambulance personnel with those in other groups of health service staff. part II: causes of retirements. *Occ Med* 1998;48(2):119–132.
16. French JRP Jr, Caplan RD, Van Harrison R, (eds), *The Mechanism of Job Stress and Strain*. Chichester, UK: Wiley, 1982.
17. Shirom A, Westman M, Shamai O, Carel RS: Effects of work overload and burnout on cholesterol and triglycerides levels: the moderating effects of emotional reactivity among male and female employees. *J Occup Health Psychol* 1997;2(4):275–288.
18. Nirel N, Shirom A, Ismail S: The relationship between job overload, burnout and job satisfaction, and the number of jobs of Israeli consultants. *Harefuah* 2004;143(11):779–784 (Hebrew).
19. Melamed S, Shirom A: The role of cortisol in the association between chronic burnout and disease. *Israel Journal of Occupational Health* 1998;2:151–155.
20. Warr P, Cook J, Wall T: Scales for the measurement of some work attitudes and aspects of psychological well-being. *J Occu Psychol* 1979;52:129–148.
21. Mullarkey S, Wall TD, Warr PB, Clegg CW, Stride C, (eds), *Measures of Job Satisfaction, Mental Health and Job Related Well-Being*. Institute of Work Psychology and ESRC Center for Organization and Innovation. Sheffield, UK: University of Sheffield, 1999.
22. Van der Ploeg E, Kleber RJ: Acute and chronic job stressors among ambulance personnel: predictors of health symptoms. *Occup Environ Med* 2005;60(1):140–146.
23. Grigsby DW, McKnew MA: Work stress and burnout among paramedics. *Psychol Rep* 1988;63:55–64.
24. Baudreaux E, Mandry C, Brantley PJ: Patient care and daily stress among emergency medical technicians. *Prehospital Disast Med* 1996;11(3):188–194.
25. Spitzer WJ, Neely K: Critical incident stress: the role of hospital-based social work in developing a statewide intervention system for first-responders delivering emergency services. *Soc Work Health Care* 1992;18(1):39–58.