Taking a Work History Using the Occupational Stress Index

This approach to taking an occupational history is based upon the Occupational Stress Index (OSI), which should be administered as an interview (attached). Please note, that in addition to the generic OSI questionnaire (General OSI), there are now two specific, validated OSI's: one for professional drivers (OSI-PD) and the other for physicians (OSI-MD). Insofar as you are interviewing someone in either of these two occupations, please use the appropriate specific OSI. In a few instances, information that you have already obtained from the Job Content Questionnaire (JCQ) and from the Effort-Reward Imbalance (ERI) questionnaires should also be incorporated; this will be indicated for you.

Included in this packet is a "Link" sheet. Therein, each stressor on the summary flow sheet is linked to the corresponding question(s) in each of the three OSI's. We illustrate how this is done with an example:

The job characteristic of socially isolated work (falling under the underload category), is evaluated as follows:

General OSI Yes, if Q.49=a
49. Communication with other people during work:
a. There is no need for work-related communication with others.
b. From time to time, I must discuss with others in order to perform my work properly.
c. Communication with other people is a major feature of my work.

OSI-PD Yes, if Q. 8=a
8. Do you drive most often:
a. Alone in your vehicle?
b. With 1 or 2 other persons in your vehicle?
c. With many passengers in your vehicle?

Physicians: No
No need to ask: the work of all physicians requires at least some work-related communication

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From this example, it can be seen that while the general OSI poses a generic question, the OSI for professional drivers directs this query to the driving milieu. For physicians, it is clear that no question is even needed here: the physician's work cannot be performed without communication with others.

The Steps: Summarized in the Flow Sheet, included in this packet.
Step (A) is to indicate the current occupation, and determine whether it falls into the high risk category for adverse somatic and psychological outcomes. It is helpful to be as specific as possible; for example, rather than merely noting that the occupation is a teacher, it would be much more informative to know e.g. whether he or she teaches in a private gymnasium versus in a poor, inner city elementary school versus in an adult education setting, etc. The number of years in the current job, as well as a list of all jobs held with approximate dates of employment should be obtained, with relevant details of past work conditions also noted.

Next, in Step (B), the underlying work characteristics should be defined. These include many factors that are somewhat fixed features of a given job, and could require major organizational change in order to be modified. As one becomes more familiar with the occupations, this step can become shorter. In other words, many of the job attributes will be obvious, so that the number of queries posed will be minimized. In the specific OSI's (for professional drivers OSI-PD, and for physicians OSI-MD), the fixed and the relatively fixed features of these occupations are indicated.

Included in Step (C) are the specific work conditions that are more likely to vary within an occupation, and may be more amenable to change. The exacerbating conditions are listed in Step D. Finally in Step E, the larger questions affecting the working individual are considered, such as threat of unemployment; work reorganization requiring change of occupational activity; minority, refugee or immigrant status which may result in discrimination and/or status incongruity. Some of these elements are part of the low reward dimension of the Effort-Reward Model. A notation should also be made of non-work related stressors, keeping in mind the additive burden. The latter may be of particular importance to women workers.

We provide here sample narrative occupational histories as can be derived from the above-described approach. This information could be included into the standard clinical history, and would provide other health professionals with insight not only into the characteristics of a given occupation, but also about modifiable work conditions which could most acutely affect somatic and psychological well-being.

SAMPLE NARRATIVE OCCUPATIONAL HISTORY (1): SEAM PRESSER DERIVED FROM THE GENERAL OSI

This patient has worked as a seam-presser in the garment industry for the past nine years; this is his first full-time paid job. He first took the job soon after getting married when he learned that he and his wife were expecting their first child. The job is monotonous, with a short-cycle single-task, minimal decision-making, and does not require communication with other workers, i.e., a job characterized by under-load. It is also work with a number of aspects of low individual control: deadline pressure and with speed-up at certain times of the year, although there has been some collective control exerted by the trade union to lower this time pressure. While the work is not rigidly paced as on an assembly line, he can only partially control the speed at which he works, since this affects the work of others in his group. There is also very heavy supervision, so that any piece of work will be rejected if it does not meet the strict standard. Physical exposures include noise (likely <90 dB), heat (often > 86 but never >103 F), daily, repeated lifting of loads up to 44 lbs., and dust from various textiles. There is some risk of burns from the irons, and the patient has suffered one minor burn accident to his finger. He has not seen or heard about other work accidents. The workweek is 40 hours, on a regular schedule starting at 8 A.M., but with an average of 4 hours of overtime per week. There are no guaranteed rest breaks. Paid vacation is 2 weeks/year. Pay is on an individual piece-rate basis; during the busy season it is described as barely adequate and during the slack season as totally inadequate. Management has recently attempted to pressure the workers to accept a lower piecework rate, with the alternative being threat of unemployment. As a consequence, the work-pace has increased in order to maintain previous pay levels. Interpersonal relations are described as fair, with tension between the supervisors and the seam-pressers.

This job shares many features with assembly-line factory work, which is a high-risk category for hypertension and CVD as well as repetitive motion disorders. Using the JCQ, because of the extremely low levels of decision latitude, coupled with high pressure to work hard and fast, this job can be called high strain, based upon the ratio calculation, although it falls within the passive quadrant. There are low rewards: both financial and in terms of career opportunities. Piece rate work and speed up contribute to high effort, such that Effort-Reward Imbalance is present. These conditions have recently worsened, and there is a threat of unemployment. The total OSI is in the range seen for industrial and building trade workers: not terribly high overall, but the under-load score is very high.

Additional Relevant Information from the Patient:
The patient has told us that he is a refugee and feels that he faces discrimination for that reason. In his home country, he was of a middle-class background with a year completed of university education. This job is status-incongruent for him. He states that the hardest part of his job is the monotony. Besides regulation of the piece rate question, he suggests that increased machine safety and providing dollies to facilitate moving bundles of clothing as easily implementable modifications to improve working life at this job.

Quantitative Assessment of Work Stressors	This Patient	Industrial and Building Trade Workers (N=227)	
		Mean	Standard Deviation
Total OSI	36	33.0	7.9
--Underload	11.5	3.8	3.0
--High Demand	7	9.0	3.7
--Strictness	6	3.5	1.6

--Extrinsic Time Pressure	4	3.2	1.5
--Noxious Exposures	3.5	6.3	2.6
--Symbolic Aversiveness	3	3.9	1.5
--Conflict/Uncertainty	1	5.2	2.8

Job Content Questionnaire:		National Average	
		Mean	Standard Deviation
Psychological demands	30	30.9	8.5
Skill discretion	25	33.5	8.5
Decision making authority	34	36.8	9.9

Quadrant:
On the borderline between the passive and high strain quadrants: clearly below average skill discretion and decision-making authority, and slightly below average psychological demands.

Ratio: 1.02, job strain is present.

Extrinsic Effort Reward Imbalance:>1

SAMPLE NARRATIVE OCCUPATIONAL HISTORY (2): DERIVED FROM OSI-PD

The patient has worked for the past ten years in his current occupation, prior to which he was a self-employed cabinetmaker for eight years. He began long-route truck driving for economic reasons after the birth of his first child. He and his wife now have three children. His work schedule is irregular, and includes frequent after-midnight night driving. At least twice per week he sleeps (3-4 hours) in his truck cabin. His working time totals over 72 hours per week, with an average of 8 hours behind the wheel per 24h. He faces considerable time pressure with each delivery, but once arriving at the destination has an uncertain waiting time of up to several hours, until delivery. During that time he lifts crates of up to 50 kg. He takes rest breaks irregularly to eat at truck stops. He drives a triple trailer A-dolly, often on poorly lit, undivided roads. He drives various routes, but always with the same vehicle that is in good mechanical condition, and has adequate shock absorbers and heating, but no air-conditioning. Cabin isolation is poor, however. He drives under all weather conditions, including heavy rain and fog, that compromise visibility. He has had one accident that occurred during late night driving (swerving off the road after facing an on-coming truck, and sustained minor injuries), and has seen numerous road accidents, many with fatal outcomes. He drives alone in his cabin. Interpersonal relations among the employed truck drivers and with the company manager and other personnel are good.

The occupational history reveals that, as a professional driver, this patient's job falls into the high-risk category for hypertension and ischemic heart disease, as well as for repetitive motion syndrome. The work is a characteristic threat-avoidant vigilant occupation. Thus, not only are high levels of sustained attention required for reasons of safety, but this exigency, in turn, appears to have an untoward effect upon the cardiovascular system. This patient faces extra hazards by driving on poorly lit undivided roads, under untoward weather conditions, and he has been in a night driving accident related to glare exposure. Having witnessed many fatal accidents further heightens the threat-avoidant vigilance of his work. He drives long, irregular hours, including night shift and early A.M.; these are key, potentially modifiable workplace risk factors. Due to poor cabin isolation, he is likely exposed to increased levels of carbon monoxide. The psychological demands of the job are further increased by having to drive the triple A-dolly trailer. The overall burden of work stressors is very high, even for a professional driver, as quantified by the total OSI score of 73. Other quantitative assessments of psychosocial workplace stressors reveal the presence of Effort Reward Imbalance and a borderline finding concerning exposure to self-reported job strain. The latter reflects the discrepancy between the objective nature of professional driving (clearly high strain), but the difficulty by which the high demands and low control are operationalized using generic versions of self-report instruments to assess job strain. He experiences both under-load and high demands: a deleterious combination.

<u>Additional Relevant Information from the Patient</u>:
This truck driver identified always having to be watchful as the most difficult aspect of his job. He, as well as several of his colleagues, identified the long and irregular work hours and night driving together with excessive waiting times as key modifiable stressors at this workplace. A team of occupational health psychologists, and cardiologists proposed a plan to regularize and shorten the work hours and improve organization to minimize the long waiting times. This is coordinated with health promotion efforts aimed at smoking cessation, exercise and nutrition. Discount tickets for the local swimming pool are made available, and groups of coworkers, and their families make this a regular part of their weekly activity.

Quantitative Assessment of Work Stressors

	This Patient	Truck Drivers (N=69) Mean	Standard Deviation
Total OSI	73	65.2	3.6
--Total Underload	10	8.1	1.9
--High Demand	16	17.2	2.1
--Strictness	9	9	0
--Extrinsic Time Pressure	9	6.8	0.8
--Noxious Exposures	9	6.3	1.5
--Symbolic Aversiveness	10	6.8	0.9
--Conflict/Uncertainty	10	11.1	1.3

Job Content Questionnaire:

		National Average Mean	Standard Deviation
Psychological demands	31	30.9	8.5
Skill discretion	25	33.5	8.5
Decision making authority	35	36.8	9.9

Quadrant
On the borderline between the passive and high strain quadrants: clearly below average skill discretion and low decision-making authority, and very slightly above average psychological demands.

Ratio: 1.03, job strain is present.

Extrinsic Effort Reward Imbalance:>1

SAMPLE NARRATIVE HISTORY (3) FOR A PHYSICIAN—DERIVED FROM OSI-MD

The patient is a widow with two grown children, and her entire working life (24 years) has been as a physician, the last 20 of these as a neurologist-psychiatrist in a public hospital. On the average she has clinical responsibility for at least 20 in-patients, usually with 3-5 patients in the ICU, and examines 30 to 40 outpatients per day, with an average of 1-5 admissions, several of whom remain under her care. Up to half of these patients are emergency cases. Other than lumbar punctures, she does not perform invasive procedures. Policy concerning patient care issues is flexible and she has substantial autonomy in this regard. However, she describes numerous problems (shortages and the like) that seriously hamper patient care. She has her own small office in which she does much of her work; heating and air conditioning are inadequate. Acute hazards include risk of violence from psychotic or otherwise dangerous patients, and risk of infection related to work with blood and other body fluids. She has not, however, ever suffered any physical harm at work, and has heard about (but never witnessed) such incidences at her workplace. Recently, she has had an increase in non-clinical responsibilities: supervising the work of house-staff, teaching medical students, as well as increased administrative responsibilities and clerical duties. No special time is allocated to perform these latter activities. She has also recently had a prolongation in work hours: her workday now lasts 8 – 10 hours, 6 days / week. She has no scheduled rest breaks, and manages only to take occasional 5 – 10 minute pauses. She rarely or never takes night call (< once/month). She has little say about her work schedule, nor about institution-level policy and planning. Her pay is fixed, and she describes it as inadequate to meet her basic needs. The social climate, however, is good; in particular, she notes that there is a constructive atmosphere for learning, and enthusiasm and devotion by colleagues to patient care, despite the above-described difficulties.

Physicians are an at-risk group for burnout, as well as for other mental health outcomes such as depression, anxiety and suicide. The work of physicians is characterized by very high demands, symbolic aversiveness (threat avoidant vigilance, hearing about and seeing disturbing things) and dilemmas and uncertainty. Numerous potentially modifiable stressors are identified above that further add to the demand level, but without concomitant increases in decision-latitude. The mean total OSI score is very high indicating a heavy total burden of occupational stressors. On the other hand, the JCQ scores fall within the "active" quadrant, and the ratio does not indicate job strain. We would suggest that the levels of decision-latitude are not sufficient to compensate for the psychological demands, and that a more detailed assessment of the latter dimension would indicate that many physicians (including this one) are indeed exposed to job strain. Having fixed and totally inadequate pay compromises the reward dimension, such that in combination with the enormous effort of this job, Effort-Reward Imbalance is present.

<u>Additional Relevant Information from the Patient</u>:
The patient says that the hardest part of her work is dealing with the death of patients, having to tell the family and feelings of helplessness in these situations. She states that the continuous responsibility and worry about patients leads her to "psychophysiologic exhaustion". But she also says that the emotional gratification of this work represents the key reward, which not only eases this tremendous burden, but also motivates her to continue. She considers that increased availability of medications and other supplies for critical diagnostic and therapeutic procedures to be the most important way to improve the her working life and that of her colleagues. She also cites the need for improved economic rewards as a key to increasing the motivation of physicians and other health-care workers. The patient tells us that she has been diagnosed and is under medical treatment for arterial hypertension; she also has elevated plasma cholesterol (LDL fraction) and cardiac arrhythmias. She smokes 30 cigarettes per day and drinks daily about 5 cups of coffee.

Quantitative Assessment of Work Stressors

	This Patient	Physicians (N=12)[1] Mean	Standard Deviation
Total OSI	73.8	76.3	6.3
--Total Underload	4	4.2	0.7
--High Demand	24.75	27.3	3.9
--Strictness	6.5	7.9	1.1
--Extrinsic Time Pressure	9	8.6	0.9
--Noxious Exposures	1.5	3.3	2.1
--Symbolic Aversiveness	12.5	11.4	1.3
--Conflict/Uncertainty	15.5	14.2	1.9

Job Content Questionnaire:

		National Average Mean	Standard Deviation
Psychological demands	35	30.9	8.5
Skill discretion	39	33.5	8.5
Decision making authority	39	36.8	9.9

Quadrant
Active — above average psychological demands, skill discretion and decision-making authority.

Ratio: 0.9, which implies that job strain is not present.

Effort/Reward Imbalance: >1

One final comment is to note that the total OSI for the driver and for the physician are about same, and indicate a very heavy burden for both. However, the nature of the stressors is very different!

[1] Unpublished data. Belkić and Savić, 2001.