Is burnout associated with referral rates among primary care physicians in community clinics?

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Abstract

Background. There is little empirical research examining the effects of burnout on objective measures of primary care physicians' behaviour in the medical encounter.

Objectives. We studied possible associations between primary care physicians' burnout and the rates of referrals. We conceptualized referral rate as a negative outcome of burnout because high and unnecessary referral rates incur extra costs to health care systems.

Methods. In this cross-sectional study, 136 primary care physicians in one district of one Israeli health maintenance organization (HMO) completed the Maslach Burnout Inventory in the presence of an interviewer. Data on each physician's objective workload and number of referrals for high- and low-cost imaging tests, specialist clinics and treatments by nurses were collected from the HMO's databases.

Results. Due to high correlations between referral rate indicators, a Confirmatory Factor Analysis revealed one factor: 'referrals for diagnostic tests and specialist clinics'. Path Analysis using Structural Equation Modelling explained a total of 18.1% of referral rate variance, with board-certified specialist mostly associated ($\beta = 0.31$, $P < 0.01$), followed by burnout ($\beta = 0.20$, $P < 0.05$) and objective workload ($\beta = 0.18$, $P < 0.05$).

Conclusions. In this preliminary investigation, we found that referral rates for diagnostic tests and specialist clinics increased independently for board-certified specialists (compared with GPs), for those with higher burnout levels and when objective workload increases. These findings support the conceptualization of referrals rates as objectively measured negative outcomes of burnout. Further replications with other objective outcomes, additional HMOs and bigger samples are warranted.

Key words: Burnout, community clinics, imaging tests, laboratory tests, primary care physicians, referrals, specialists.

Introduction

Increasing levels of occupational stress among physicians have been documented in many Western countries (1). A common negative outcome of chronic stress is burnout, a multidimensional stress syndrome that signifies the depletion of physical and emotional energies (2). Burnout has been found consistently to affect negatively employees' well-being and health (3).

Primary care physicians in developed countries are especially vulnerable to high levels of burnout (4). Consequently, physician burnout has become a significant cause for concern for health care services that recognize the importance of primary care physicians in delivering high-quality services while constraining escalating health care costs (5).

It is commonly assumed that burnout has negative effects on workforce functioning, (6) but there is little empirical research on burnout outcomes in medicine (7). The research published so far has focused mainly on causes of physician burnout. Recently, Halbesleben and Rathert (8) concluded that 'the neglect of exploration of whether and how health care employees' burnout influences patients prevents us from understanding the impact of burnout on health care.'

Most of the studies on burnout outcomes in medicine focus on physicians' subjective, self-reported job performance measures such as medical errors, (9,10) suboptimal patient care practices, (9,11) self-assessed quality of health care provided to the patients (12) and self-reported referrals for laboratory tests, diagnostic tests and specialists (13). There is very little empirical research on the effects of burnout on 'objective' outcome measures of physician behaviour, and no firm conclusions can be drawn. Moreover, a study by Fahrenkopf (14) that involved both subjective reports and objective surveillance of medical errors found that although burnt out residents reported making significantly more medical errors than their non-burnt out colleagues, burnout level had no 'objectively' measurable associations with medication errors. They concluded that 'this is an important finding, as burnt out residents reported making significantly more medical errors than their non-burnt out colleagues in several studies, including our own.'

In the present study, we investigated for the first time associations between primary care physician burnout and objectively assessed rates of referral behaviours. Referrals, especially those that involve high-cost imaging tests may incur extra costs to health care systems and are therefore important outcome measures of physician behaviour. We focused on referral rates for imaging tests, for specialist clinics and for nurses' treatments.

Referral rates *per se* are not negative indicators of quality of health care. Yet, we hypothesized that burnout levels will be positively associated with the rates of all referral types. This hypothesis was based on the rationale proposed by a group of researchers (15) who have suggested that burned-out physicians may prefer a biomedical approach that takes the patient requests at face value and leads to shorter visits. They reasoned that burned-out physicians would be less likely to engage in patient-centred communication that explores and validates patients' concerns and bases treatment on in-depth-understanding of the patient's symptoms, feelings, ideas and expectations. According to this logic, referring patients to many tests and specialists may be a way of curtailing the amount of interaction with the patient and the length of the visit (intentionally or unconsciously), without appearing to dismiss the health complaints, because a further action is offered. Indeed, several studies found that patient-centred communication is associated with fewer referrals for diagnostic tests and specialists (16,17).

Methods

Study population and procedure

A total of 136 primary care physicians participated in the study, which took place between October 2007 and September 2008. All physicians were employed in community clinics in small towns in the Southern district of one Israeli health maintenance organization (HMO). This sample includes almost all primary care physicians in this HMO in the district. We only excluded four physicians in small and remote community clinics. Those physicians attend the clinic only one or two days a week and are otherwise employed in hospitals or another health care facility that is not a community clinic. The effective response rate was very high (99%; only one physician refused to participate in the study).

The names and contact details of all primary care physicians in the district were obtained from the HMO's data base. A letter describing the purpose of the study and requesting to take part in it was sent to all prospective participants. The letter was signed by the medical director of that district. About a week later, an experienced research assistant started to contact the prospective participants, and asking them to participate. It was emphasized throughout that participation was voluntary and that the gathered data will be used for research purposes only. For those who agreed to participate, a time was set for an interview. The interviews took place after working hours in the physician's office and lasted about 45–50 minutes.

The study was approved by the district management and the research committee of the HMO and by the ethics committee of the Faculty of Health Sciences at Ben-Gurion University of the Negev.

Measures

Socio-demographic details
The following details were collected: age (years), gender, country of birth (Israel and Asia, Former Soviet Union, Europe/America), years of residence in Israel and number of children.

Professional characteristics
The following details were collected: country of medical school graduation (Israel and Asia, Former Soviet Union, Europe/America), years of practicing medicine, years of practicing medicine in Israel, board-certified specialist (yes/no) and number of hours per week of practicing medicine.

Self-rated health
Self-rated health was measured by two items: 'generally, how would you define your medical status?' and 'compared to other people your age, how would you define your medical status?' Responses were given on a six-point Likert scale ranging from 1 'very poor' to 6 'excellent'. An index was created as an average

of the responses to both items. In this study, the inter-item Pearson correlation was 0.798.

Burnout

Burnout was measured using the Maslach Burnout Inventory (MBI). This instrument has been used in numerous studies of physician burnout and well-being. The MBI is the most well-studied measurement of burnout in the literature and has become the standard tool for measuring burnout in research on the syndrome (18). Recently, an analysis of data from large-scale cross-sectional surveys of nurses from eight countries (19) concluded that the MBI can be used with confidence as a burnout measure internationally.

The MBI has 22 items divided into three subscales that tap into the independent domains of burnout: Emotional Exhaustion (EE; the feeling that one's emotional resources have been used up), Depersonalization (DE; viewing co-workers and clients as dehumanized objects instead of people) and Personal Accomplishment (PA, reverse scored to reflect the tendency to experience loss of competence and successful achievement in one's work). Responders rate the frequency with which they experience various feelings on a seven-point Likert scale, with response options ranging from 'never' to 'daily'. Higher values of each of the three subscales signify burnout. Reliability coefficients (Cronbach's α) for the present study were 0.86, 0.72 and 0.64, respectively.

Objective workload

We have included a measure of the objective workload level since overload is one of the major causes of occupational stress and distress. Workload was defined as the number of patients' visits per physician per hour. The index was calculated as the ratio of the number of visits per participating physician in the year in which the study was undertaken (retrieved from the HMO databases) and the number of work hours reported by the physician.

Referral rates: the outcome variables

These were calculated as the rates per physician of referrals per year (between October 2007 and September 2008), for expensive/high-cost diagnostic imaging tests (magnetic resonance imaging, computed tomography), inexpensive imaging tests (X-rays, ultrasound), nurse treatments and specialist clinics [pulmonary, cardiology, gastroenterology, ophthalmology, audiology and electroencephalography (EEG)]. The rates were calculated by dividing the number of referrals by the number patients seen by the physician. These data were provided for each physician by the HMO.

Analytic strategy

The associations between physicians' referral behaviours and the independent variables were assessed with Pearson's or Spearman's correlation coefficients according to scale structures. Differences among mean values of continuous variables were tested using *t*-tests and analysis of variances. The relative contribution of the different variables to the explanation of physicians' referral behaviours were examined by Path Analysis method using Structural Equation Modelling (SEM). Only variables that correlated significantly with each of the dependent variables (referrals behaviours) in univariate analyses were included as independent variables in the Path Analysis. The data were analyzed with the statistical software SPSS, PC version 17.0 and AMOS V.20. Significance level was set at $P < 0.05$.

Results

The physicians' average age was 52.2 years (range: 33–68, SD = 7.02); 94 (68%) were female and 43 (31.6%) were male. Most were married (91%). Forty physicians (29.4%) had no children, 44 (32.4%) had one child, 34 (25.0%) had two children and 18 (13.2) had three or more children. About 60% of the physicians were not board-certified specialists in family medicine. The shortage of specialists is characteristic of peripheral areas. The physicians' average years of practicing medicine was 25.5 years. The average number of hours practicing medicine per week was 40. The sample characteristics are presented in Table 1.

Burnout levels

Burnout components

In order to calculate the level of burnout, we used the criteria published for medical workers, (20) where high burnout levels are considered as EE ≥27, DE ≥10 and PA ≤33. Sixty (44.5%) of the physicians reported high levels of emotional exhaustion; 49 (36%) reported high levels of depersonalization and 43 (31.6%) reported low levels of personal accomplishment.

Overall burnout score

In addition to the three subscale scores, we formed an overall burnout score being the average of the responses to the items of the EE and DE subscales following the convention supported in several studies (11). Cronbach's α coefficient for this scale was 0.86. PA was not included in the total burnout score because in the present sample, the reliability coefficient of the PA subscale was <0.70. Other recent studies have also found the PA scale to be of questionable validity (7,21).

Seventy-six (56%) of the physicians in the sample reported high burnout levels (average level of emotional exhaustion ≥27 and/or average depersonalization score 10≤). None of the three burnout components or the overall score was associated with any of the socio-demographic details.

Table 1. Description of the professional characteristics of the physicians and their associations with referral behaviours (*N* = 136)

Variable	*N* (%)	Range	Mean (SD)	Referrals for diagnostic tests and specialists
Country of medical graduation				*F* = 1.62
Israel/Asia	22 (16.1)			
Former Soviet Union	97 (71.3)			
Europe/America	17 (12.5)			
Board-certified specialist				*t* = −3.65**
Yes	53 (39.0)			
No	83 (61.0)			
Years of practicing medicine		5–42	25.52 (7.63)	*r* = −0.11
Number of hours of practicing medicine per week		17–60	40.23 (7.95)	*r* = 0.06
Self-rated health		1–6	4.76 (0.92)	*r* = −0.08
Work satisfaction		1–5	4.08 (0.77)	*r* = −0.07
Objective workload		0.56–12	4.61 (1.90)	*r* = 0.16*
Burnout		0–72	31.94 (13.97)	*r* = 0.15*

*P < 0.10; **P < 0.01.

Referrals

Due to high correlations between referral rate indicators, a single-factor Confirmatory Factor Analysis was conducted using SEM. The results indicated that referrals for expensive/high-cost diagnostic imaging tests, inexpensive imaging tests and specialist clinics should be modelled as one latent factor while constraining two error terms to be correlated [χ^2 = 0.02, d.f. = 1, *P* = nonsignificant (ns); Comparative Fit Index (CFI) = 1.00, Normal Fit Index (NFI) = 1.00, Root Mean Square Error of Approximation (RMSEA) = 0.00]. We labelled the single factor 'referrals for diagnostic tests and specialists' and omitted the variable 'referrals to nurse treatments' from further analyses.

Referrals and univariate associations

The physicians' professional characteristics and their associations with referral behaviours (referrals for diagnostic tests and specialists) are described in Table 1.

The majority of the physicians graduated from medical schools in the former Soviet Union, followed by schools in Israel/Asia and Europe/America. No significant association was found between country of medical education and referral behaviours.

The majority of the physicians were not board-certified specialists. A significant association was found between specialization status and referrals: board-certified specialists referred more patients for diagnostic tests and specialist clinics compared to non-board-certified specialist physicians.

Physicians' age, gender, the number of weekly hours of practicing medicine, self-rated health and work satisfaction scores were not correlated significantly with the referral behaviours.

We found significant positive associations between objective workload and referrals to diagnostic tests and specialist clinics: the higher the objective overload, the higher the rate of referrals.

Referrals and burnout

As shown in Table 1, we found significant positive associations between overall burnout score and referrals for diagnostic tests and specialist clinics.

Predicting referral behaviours: multivariate analyses

The professional characteristics that correlated significantly with referrals in univariate analyses were examined as possible predictors of referral behaviours by Path Analysis using SEM (Fig. 1). Medical specialization status (board-certified specialist versus GPs), objective workload and burnout were modelled to explain the latent factor of patient referral rates, which included referral for expensive/high-cost diagnostic imaging tests, inexpensive imaging tests and specialist clinics. Model fit indexes supported the hypothesized model and demonstrated adequate model fit (χ^2 = 11.32, d.f. = 7, *P* = ns; CFI = 0.97, NFI = 0.94, RMSEA = 0.07). The model explained a total of 18.1% of referral rate variance, with board-certified specialist mostly associated (β = 0.31, *P* < 0.01), followed by burnout (β = 0.20, *P* < 0.05) and objective workload (β = 0.18, *P* < 0.05).

The results of the Path Analysis clearly indicated that referral rates increase independently for board-certified specialist physicians (compared with non-specialists), for those who report higher levels of burnout and when objective workload increases.

Discussion

There is a widely held belief that burnout is detrimental to health care quality, but the existing literature of this association is too scant and the evidence inconclusive. Most of the few existing studies on burnout outcomes in medicine focus on subjective self-reports (such as medical errors).
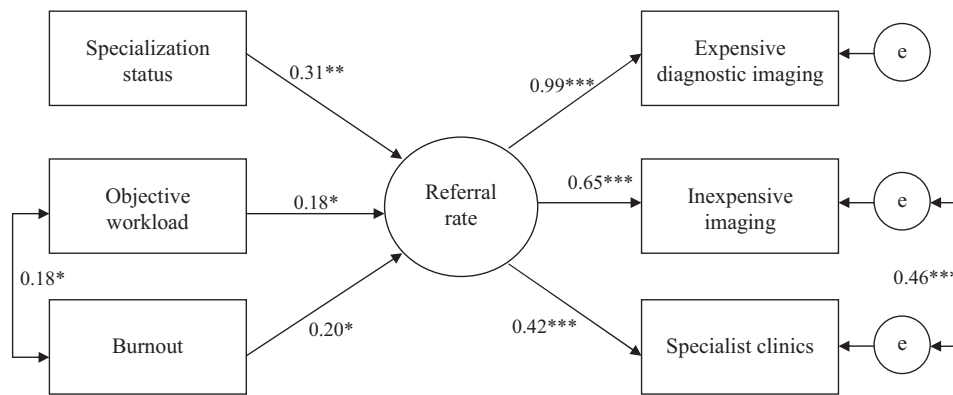
Figure 1. Path Analysis based on SEM—predicting referral behaviours. *$P < 0.05$; **$P < 0.01$; ***$P < 0.001$.

We believe this study is the first of its kind. We tested the associations between primary care physician burnout (a subjective phenomenon) and objectively assessed rates of referral behaviours. The referral categories included expensive and inexpensive imaging tests and specialist clinics such as pulmonary, cardiology, gastroenterology, ophthalmology, audiology and EEG. We found that the level of burnout (emotional exhaustion and depersonalization combined) was an independent and significant predictor of referrals for diagnostic tests and to specialist clinics.

Referral rates *per se* are not indicators of poor health care quality, but high 'rates' of referrals, especially of unnecessary and/or 'bad' (inappropriate) referrals could reflect negative burnout outcomes. We argued that burned-out physicians may make more referrals than those who are not burned out because, on the one hand, referrals could be essential components of the medical treatment, but at the same time, they could also appear to be a correct or acceptable way of ending the visit sooner than expected by the patient. For a burned-out physician, having a conversation that leads to in-depth-understanding of the patient's symptoms, feelings, ideas and expectations could be too demanding and would also take longer. However, in the present study, we did not investigate the reasons that mediate burnout levels and referral rates, such as the hypothesized explanations listed above. Future studies should focus on such mediators. We also recommend that future studies compare the length of consultations with high- and low-burnout physicians.

Professional status (being board-certified family physician or not) was also a significant and independent predictor of the studied referral behaviours. Board-certified specialists in family medicine referred significantly more than did GPs. These results could mean that extended and more specialized professional training and experience may promote more caution and motivate physicians to seek more evidence-based information from varied sources in order to proceed with treatment.

The third significant predictor was objective workload. Workload and especially subjective quantitative overload is generally used as an index of occupational stress. There are numerous sources of occupational stress among primary care physicians, and in the present study, factors related to peripheral location are especially important.

Traditionally, the periphery and rural areas tend to suffer from a chronic shortage of medical services and specialist physicians. The demographic characteristics of the study sample, mainly older GPs may reflect the fact that the study was held in one of the peripheral and less privileged districts in the country, which is ubiquitously characterized by shortage of physicians, medical services in general and specialists in particular ([22]).

Since high levels of stress and burnout are often associated with job dissatisfaction and risk for turnover, ([23]) the high burnout levels recorded for physicians in the present sample (56% of the physicians) underscore the risk of increased shortage of physicians.

While we did not study expenditure directly, clearly, any excess referrals, especially those to expensive imaging tests, would be translated to increased costs to the health care system, which makes the subject of burnout a highly important issue.

To the best of our knowledge, there is a single study that specifically investigated the effects of burnout on actual costs of prescribing behaviour in Spain ([24]) and found that the annual cost of prescriptions per patient was greater among physicians with higher levels of emotional exhaustion than those with lower levels. The researchers suggest that burnout complicates the process of clinical decision-making, resulting in inefficient management of pharmaceutical expenditure.

Finally, it should be acknowledged that there may be other factors which we have not considered that influenced the referral rates. In the present study, the correlation between referrals for expensive/high-cost diagnostic imaging tests and referrals to specialist clinics error terms indicates that the two variables share

common variance excluding the variance explained by the latent factor. The common variance might be explained by other factors that lead physicians to refer patients but were beyond the scope of the current investigation. Future studies with bigger samples could consider more predictors of both burnout and referrals.

Limitations

There are several limitations to this study. The study sample is not representative. The participants were associated with only one district of one HMO and resided and worked in small towns in a geographically and culturally peripheral zone where there is a shortage of physicians in general, board-certified specialist physicians in particular and fewer medical resources. Further replications should include more HMOs, additional geographical areas, a larger variety of medical specializations and a variety of objective outcome measures, controlling for patients' case-mix.

The present study used a cross-sectional design, and it is impossible to determine causation. Given the interesting associations found here between referral rates and burnout, specialization status and objective workload, we suggest that future studies employ a longitudinal design (such as a follow up case control study on the present sample) to help separate better the relative importance of the potential explanations for differences in referral rates.

We have not considered characteristics of the practices as predictors of burnout and referrals. Future studies should include practice variables, such as locality, list size, number of colleagues, etc., as predictors of the outcome measures.

Another limitation is that although we have suggested that referring patients for many tests and specialists may be a way of curtailing the amount of interaction with the patient and the length of the visit, this suggestion remains speculative. We did not compare the length of consultations of physicians with high and low levels of burnout. We did not measure the actual length of the consultations at which referrals were made in comparison to other similar consultations at which referrals were not made. This limitation reflects practical considerations for the present study that spanned 1 year, it is important that future studies test this hypothesis using a shorter and more realistic time frame.

Another limitation is the small range of referral categories. We studied only referrals for diagnostic tests, specialist clinics and treatments by nurses. It would be interesting to investigate further types of referrals such as to emergency departments, to laboratory tests and prescriptions for medications.

Finally, we focused only on the rate of referrals but did not distinguish between 'good' and 'bad' (inappropriate) referrals nor assess the rate of unnecessary and/or 'bad' referrals among physicians with high burnout compared with those with low burnout levels. Perhaps such a categorization would have

increased the explanatory ability of the statistical models. We recommend that future studies distinguish between appropriate and inappropriate referrals.

Conclusions

In this study, which is the first study of this kind, we found that referral rates were significantly predicted by burnout and also by medical specialization status (board-certified specialist versus GP) and objective workload. We suggest that unconsidered factors (e.g. clinic characteristics, patients' case-mix) are also influencing both burnout and the referral rates and should be subject to further systematic investigations.

Implications

Burnout may incur unwarranted and costly medical referrals. The modest and positive results presented here should be viewed as a basis for further research. Clearly, the significant associations of burnout with referrals, the dearth of studies of burnout impact on objective job performance measures and the ubiquitous expectation of a negative impact on performance, on the other hand, warrant further investigations. It is time that such studies should focus on a variety of objectives measures of physician behaviour and on objectively assessed outcomes such as the referral rates studied here.

Declaration

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