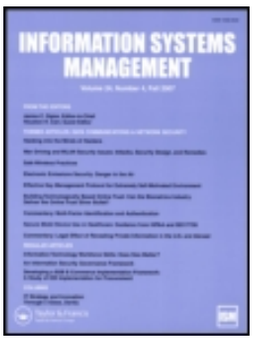

Information Systems Management

ISSN: 1058-0530 (Print) 1934-8703 (Online) Journal homepage: http://www.tandfonline.com/loi/uism20

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To cite this article: Adam S. Huarng (2001) Burnout Syndrome among Information System Professionals, Information Systems Management, 18:2, 15-20, DOI: 10.1201/1078/43195.18.2.20010301/31272.3

To link to this article: http://dx.doi.org/10.1201/1078/43195.18.2.20010301/31272.3

BURNOUT SYNDROME AMONG INFORMATION SYSTEM PROFESSIONALS

Information Systems Management 2001.18:15-20.

Adam S. Huarng

Burnout is a unique type of stress syndrome. Although it has been shown to be potentially very costly in the helping professions, such as nursing, education, and social work, little work has been done to apply the concept to technical professionals such as information systems (IS) professionals. Given the nature of information systems development, we believe that burnout can be a potential problem for IS professionals. The study described herein examined the levels of burnout among a group of IS developers in the United States. The results indicated that the levels of burnout among IS professionals differ according to their job types and work contents.

THE STUDY OF BURNOUT IS A MAJOR research area in industrial and organizational psychology. Hundreds of articles have been written examining the syndrome of burnout. It is generally accepted that burnout has impacts on employees' absenteeism, turnover, reduced productivity, and human considerations. However, very few information systems (IS) researchers have applied the knowledge gathered by industrial and organizational psychologists to the study of burnout among IS professionals.

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In broad terms, burnout refers to the syndrome of physical and emotional exhaustion involving the development of negative job attitudes and loss of concern and feeling for others. The most common accepted definition of burnout is the three-components conceptualization used by Maslach and Jackson: (1) emotional exhaustion, (2) depersonalization, and (3) reduced personal accomplishment. Emotional exhaustion reflects feelings of frustration and tension as individuals realize they cannot continue to give of themselves or be as responsible for clients as they had been in the past. Primarily, emotional exhaustion occurs in "intensive" and "people-oriented" occupations, in which jobs involve intensive interpersonal interactions. Depersonalization represents the tendency to treat clients as objects rather than people. Individuals may display a cynical, callous, uncaring, and negative attitude toward co-workers, clients, and the organization. Reduced personal accom-

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The outcome of interpersonal contacts with individuals outside the information systems department may result in high level of burnout.

plishment is characterized by a tendency to evaluate oneself negatively. In extreme burnout, individuals no longer believe their actions make a difference, and consequently they quit trying.

During the past 20 years, information systems function has experienced a rapid growth in almost every organization as a result of the intense competition in the industry. This growth has led to more complex and specialized jobs for IS professionals. These jobs often require IS people to interact with individuals outside the information systems department. Individuals in other departments may have orientations and expectations that are very different from those of the IS professionals. The outcome of these interpersonal contacts may result in high level of burnout.

The purpose of this article is to investigate the burnout phenomenon among IS professionals. A questionnaire survey was designed to examine the levels of burnout, the effects of job assignments on burnout, and to compare IS professionals' burnout with burnout levels in other professions.

EXHIBIT 1 Demographic Statistics

A. Sex (Number of respondents = 175)		
Male	124	(70.9%)
Female	51	(29.1%)
B. Age		
Under 30	81	(46.3%)
30–under 40	71	(40.6%)
40–under 50	21	(12.0%)
Over 50	2	(1.1%)
C. Educational Level		
College	149	(88.1%)
Graduate	26	(14.9%)
D. Year with Company		
Under 2	54	(30.9%)
2–under 6	80	(45.7%)
6–under 10	30	(17.1%)
Over 10	11	(6.3%)
E. Job Type		
Application Development	67	(38.3%)
Systems Programming	28	(16.0%)
Technical Management	32	(18.3%)
Technical Consultant	12	(6.9%)
Liaison	20	(11.4%)
Operations Support	16	(9.1%)
F. Job Content		
Systems Analysis	32	(18.3%)
Systems Design	37	(21.1%)
Coding/Debugging	71	(40.6%)
Test	14	(8.0%)
Maintenance	21	(12.0%)

BURNOUT AMONG IS PROFESSIONALS

IS professionals from 34 companies were asked to complete a questionnaire. A total of 522 survey forms were distributed, and 175 usable questionnaires (34%) were returned. Demographics of the respondents are shown in Exhibit 1.

The instrument used to measure burnout is the Maslach Burnout Inventory (MBI). The MBI contains 22 questions designed to elicit the respondent's level of burnout. The MBI uses a seven-point scale ranging from "never" to "every day" to determine burnout in three dimensions: personal accomplishment, emotional exhaustion, and depersonalization. An analysis of the MBI provides mean scores and categorical rankings (high, moderate, or low burnout) for each of the three burnout dimensions. Sample items for each scale, with the number of items in the scale in parentheses, include:

1. *Emotional exhaustion* (9); "I feel emotionally drained from my work."
2. *Depersonalization* (5); "I feel clients (recipients) blame me for some of their problems."
3. *Personal accomplishment* (8); "I have accomplished many worthwhile things in this job."

The Maslach Burnout Inventory (MBI) was selected for three primary reasons. First, it is the most widely used of the burnout instruments available. Second, while many other instruments measure burnout in the respondent's personal life and daily activities, the MBI was designed to measure burnout in the workplace. An analysis of research has shown that the MBI applies in a commercial setting involving a broad range of specialties. Finally, the MBI has application across a broad range of industries. That is especially important in a young field like information systems.

Job Type

Because of the wide variety of IS job titles, respondents were asked to select one job type that best describes his or her job responsibility from a list of six job categories. The following job categories were adopted from Turner and Baroudi[9] with modification.

1. *Application development*: programmers and analysts performing maintenance and developing new application systems
2. *Liaison and coordination:* database administration, network administrator, data administrator, and end-user coordinator

3. *Systems programming:* programmers whose job involves system maintenance, configuration and modification, and installation and maintenance of package software
4. *Technical consultants*: documentation, manual procedures, training other specialists whose expertise is necessary for the development of application systems
5. *Technical management*: project leader and department head
6. *Operations support:* maintaining tape and disk libraries, user information services, console operators

Work Contents

The respondents were asked to select one work content that best describes his or her current software development activities from the following five systems development phases.

1. *Systems analysis*: analyze the requirement of users and summarized them in the specification.
2. *Systems design*: design the function of the whole system and divide them into the module based on the specifications.
3. *Coding/debugging*: write program based on the detailed design; find and revise mistakes in the program.
4. *Test:* unite the modules and test the whole system.
5. *Maintenance*: maintain the system after it is delivered to the users

ANALYSIS AND RESULTS

Burnout Among IS Professionals

The levels of burnout among IS professionals are shown in Exhibit 2. The emotional exhaustion subscale analyzes a respondent's sense of being overextended, tired, and emotionally exhausted in the work setting. In the MBI, it can range from 0 to 54. The higher the score, the higher the sense of emotional exhaustion and the higher the level of burnout. Emotional exhaustion scores of 1 to 16 are considered low burnout, scores of 17 to 26 are moderate, and scores of 27 or greater are high. The depersonalization subscale analyzes a respondent's sense of uncaring, unfeeling, and impersonal responsiveness to clients. In the MBI, it can range from 0 to 30. The higher the score, the higher the sense of depersonalization and the level of burnout. Depersonalization scores of 0 to 6 are considered low burnout, scores of 7 to 12 are moderate, and scores of 13 or greater are high. The personal accomplishment subscale analyzes a respondent's sense of competence and accomplishment in the work setting. In the MBI, it can theoretically range from 0 to 48. The lower the score, the lower the sense of personal accomplishment and the higher the level of burnout. Personal accomplishment scores of 0–31 are considered high burnout, scores of 32 to 38 are moderate, and scores of 39 or higher are low.

Most of the respondents demonstrated some evidence of burnout, and between 16.5 and 39.5 percent of the 175 IS professionals fell into the high burnout range. Over 16 percent showed a high level of emotional exhaustion, and another 67 percent demonstrated a level of emotional exhaustion in the middle range. Thirty-six percent indicated that they depersonalized others regularly to cope with the demand of the people they encounter on the job, and 52 percent depersonalized fairly frequently. Over 39 percent showed a high level of reduced personal accomplishment, and 41 percent showed moderate level of reduced personal accomplishment.

Burnout Among Six Job Types

The burnout mean scores for each job type are shown in Exhibit 3. Exhibit 4 shows the comparison among six job types. Among the six job types, liaison is the most burned-out group. IS professionals who work as liaison have to spend a great deal of time interacting with end users an well as other IS professionals. They have to react flexibly when different

EXHIBIT 2 Levels of Burnout Among IS Professionals

	Percentage of Respondents		
Burnout Dimension	Low Burnout	Average Burnout	High Burnout
Emotional Exhaustion	16.5%	67%	16.5%
Depersonalization	11.4%	52.6%	36%
Personal Achievement	19.4%	41.1%	39.5%
EE = Emotional Exhaustion	Low: 1–16	Moderate: 17–26	High: 27 and over
DP = Depersonalization	Low: 0 – 6	Moderate: 7–12	High: 13 and over
PA = Personal Achievement	Low: 39 and over	Moderate: 32–38	High: 0 – 31

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communication requirements appear. This intensive interpersonal contact could be the source of their burnout.

EXHIBIT 3 Levels of Burnout Among Six Job Types

Job Type	EE	DP	PA
Application Development	23.66	7.13	32.31
Systems Programming	17.86	6.39	33.86
Technical Management	21.03	7.91	32.69
Technical Consultant	20.42	7.83	33.67
Liaison	23.85	8.60	27.60
Operations Support	20.56	6.13	35.81

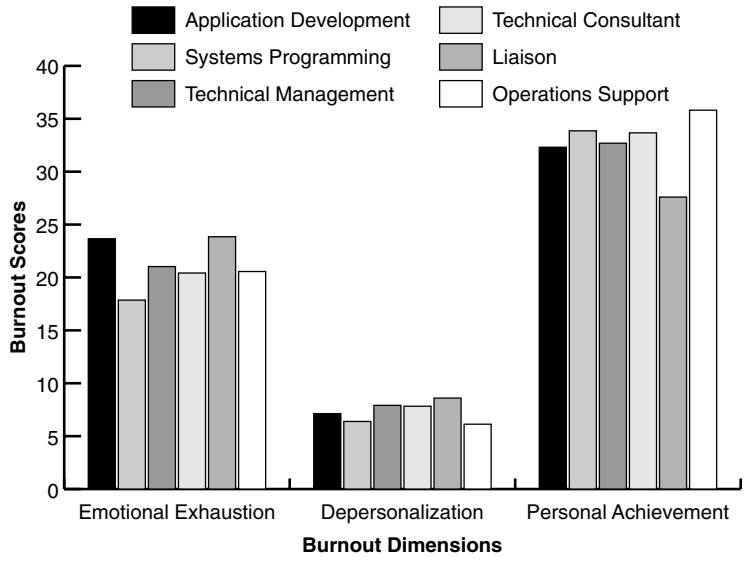
EE=Emotional Exhaustion	Low: 1–16	Moderate: 17–26	High: 27 and over
DP=Depersonalization	Low: 0 – 6	Moderate: 7–12	High: 13 and over
PA=Personal Achievement	Low: 39 and over	Moderate: 32–38	High: 0–31

EXHIBIT 4 Levels of Burnout Among Five Work Contents

Job Type	EE	DP	PA
Systems Analysis	21.31	6.94	27.59
Systems Design	21.70	7.89	34.76
Coding/Debugging	21.94	7.14	33.77
Test	22.07	5.71	33.50
Maintenance	21.76	8.24	31.05

EE = Emotional Exhaustion	Low: 1–16	Moderate: 17–26	High: 27 and over
DP = Depersonalization	Low: 0–6	Moderate: 7–12	High: 13 and over
PA = Personal Achievement	Low: 39 and over	Moderate: 32–38	High: 0–31

EXHIBIT 5 Mean Values of Burnout Dimensions Among IS Professionals by Job Types



Burnout Among Six Work Contents

The burnout scores for each software development phase are shown in Exhibit 5. Exhibit 6 shows the comparison of burnout scores among the phases.

Systems Analysis. Thirty-two IS professionals (18.3 percent) were working at this system development phase. The results show that IS professionals of this phase have moderate emotional exhaustion, high depersonalization, and low personal accomplishment. System analysis often requires extensive interpersonal contacts with users. The outcomes of these interpersonal contacts may result in high level of depersonalization and reduced personal accomplishment.

System Design. Thirty-seven IS professionals (21.1 percent) were working in this phase. The results show that they have moderate level of emotional exhaustion, moderate level of depersonalization, and moderate level of reduced personal accomplishment. Because the function of whole system was already designed in the previous phase, in this phase IS professionals can devote themselves to designing the program in one module without concerning the perspective of the system or potential problem. Therefore, their burnout scores are lower than in the systems analysis phase.

Coding and Debugging. Seventy-one IS professionals (40.6 percent) were included in this phase. Coding and debugging require not only mental but also physical work. The debugging requires patience and concentration. Moreover, most of the IS professionals have to do overwork and night work in this phase to cope with approaching deadlines. These conditions are considered to be sources of their burnout. The results show that they have moderate burnout in all three dimensions.

Test. Fourteen IS professionals were working in this phase. In this phase, all work done in the preceding phases is evaluated, and if there are problems, they must revise the whole system. It often happens that the system operates in a different way from the required function. The results show that they have the lowest level of depersonalization when compared with other groups. Emotional exhaustion and personal accomplishment are moderate.

Maintenance. Twenty-one IS professionals are included in this phase. In this phase, IS professionals maintain the system after it has been delivered to the users. Routine work plus endless maintenance are the cause of their burnout.

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A Comparison Between IS Professionals and Other Professionals

Exhibit 7 provides a comparison of the burnout mean scores arrived at in this study with those reported in the literature for other professions. Only studies that used the MBI scales were included in the exhibit. In terms of emotional exhaustion, Exhibit 7 reveals that IS professionals reported a higher level of burnout than police and nurses. However, their emotional exhaustion level was lower than that of teachers, welfare managers, and hospitality industry employees. Likewise, for depersonalization, IS professionals indicated that their burnout tendencies are higher than teachers and welfare managers, but lower than nurses, police, and hospitality industry employees. Finally, in terms of personal achievement, the mean values obtained for the IS professionals sample are the second lowest (high burnout) compared to those for other professions. Only public welfare agency managers had a lower score than IS professionals.

EXHIBIT 6 Mean Values of Burnout Dimensions Among IS Professionals by Work Contents

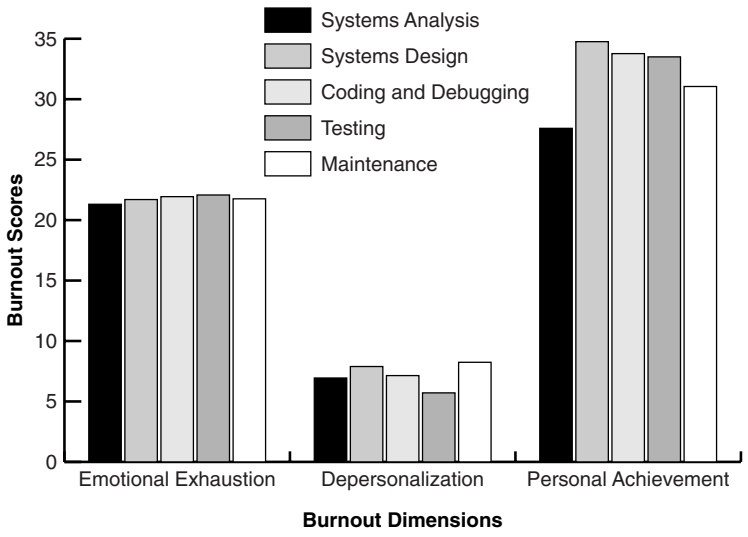
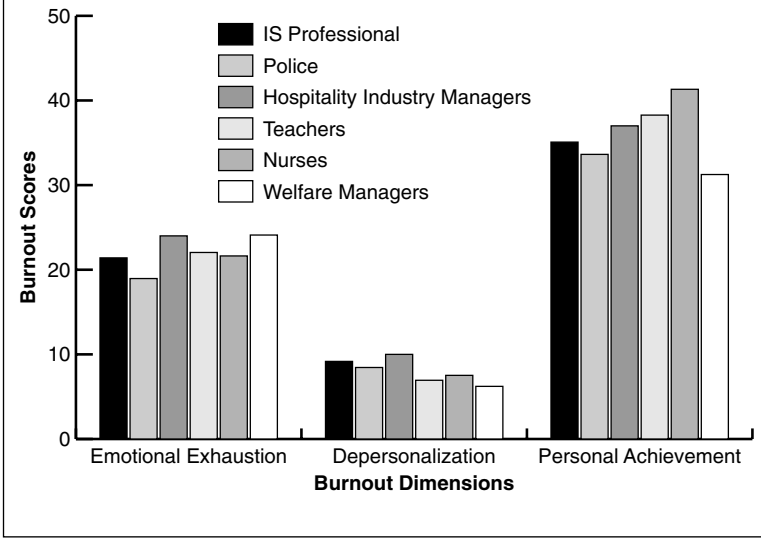


EXHIBIT 7 Mean Values of Burnout Dimensions Among IS Professionals in Comparison with Other Professionals



CONCLUSION

Based on the examination of the burnout scales, it appears that the levels of burnout among IS professionals differ according to their job types and work contents. IS professionals had increased levels of burnout, especially in the dimension of reduced personal accomplishment, in the systems analysis and maintenance phases. IS professionals with job types in the areas of application development and liaison also have higher burnout scores than other IS job types. It is suggested that some measures should be taken to cope with burnout in those areas. For example, constructing the aiding system for the requirement analysis phase, developing methods to analyze users' requirements effectively, and searching for the problems in communication between users and IS professionals. It is also recommended that effective project management methods should be implemented. An example is developing a method to estimate the length of the proposed deadline adequately to avoid overload, or exploring a software development management method to avoid the delay in each phase.

This study also suggests that interpersonal contacts contribute to IS professionals' burnout. However, such contacts seem to be unavoidable as IS organizations attempt to serve the increasing number of users in the organization with limited resources. Training to help IS people cope with those intensive and frequent contacts may be helpful for the existing staff. In the future, corporate managers may want to consider recruiting those individuals who have tolerance for both intensive and frequent interpersonal contacts, as these may be unavoidable conditions during systems development. ▲

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Information Systems Management 2001.18:15-20.

United States Postal Service

Statement of Ownership, Management, and Circulation

1. Publication Title	2. Publication Number	3. Filing Date
Information Systems Management	1 0 5 8 - 0 5 3 0	2/12/01
4. Issue Frequency	5. Number of Issues Published Annually	6. Annual Subscription Price
Quarterly	4	$215.00

7. Complete Mailing Address of Known Office of Publication *(Not printer) (Street, city, county, state, and ZIP+4)*
CRC Press LLC
2000 NW Corporate Blvd.
Boca Raton, FL 33431-7372
Contact Person: Andrea Demby
Telephone: 561-361-6000

8. Complete Mailing Address of Headquarters or General Business Office of Publisher *(Not printer)*
CRC Press LLC
2000 NW Corporate Blvd.
Boca Raton, FL 33431-7372

9. Full Names and Complete Mailing Addresses of Publisher, Editor, and Managing Editor *(Do not leave blank)*
Publisher *(Name and complete mailing address)*
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15. Extent and Nature of Circulation	Average No. Copies Each Issue During Preceding 12 Months	No. Copies of Single Issue Published Nearest to Filing Date
a. Total Number of Copies *(Net press run)*	1375	1300
b. Paid and/or Requested Circulation (1) Paid/Requested Outside-County Mail Subscriptions Stated on Form 3541. *(Include advertiser's proof and exchange copies)*	1007	970
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c. Total Paid and/or Requested Circulation *[Sum of 15b. (1), (2),(3),and (4)]*	977	940
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g. Total Distribution *(Sum of 15c. and 15f)*	1007	970
h. Copies not Distributed	368	330
i. Total *(Sum of 15g. and h.)*	1375	1300
j. Percent Paid and/or Requested Circulation *(15c. divided by 15g. times 100)*	97%	97%

16. Publication of Statement of Ownership
☒ Publication required. Will be printed in the Spring 2001 issue of this publication. ☐ Publication not required.

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