

## Job Satisfaction among Malaysian Pharmacists

SIVAKAMI JANAHIRAMAN & THOMAS PARADATHATHU

### ABSTRAK

*Kajian ini dijalankan untuk mengukur tahap kepuasan kerja di kalangan ahli-ahli farmasi di Malaysia. Borang soalselidik yang dibina berdasarkan kajian lepas telah dikirim kepada 1700 ahli farmasi. Penelitian respons dari 405 ahli farmasi yang memberikan respon menunjukkan perbezaan yang signifikan antara kepuasan kerja dengan umur, jawatan dan pendapatan bulanan. Ahli farmasi dalam lingkungan umur 26 hingga 35 tahun pula kurang berpuas dengan kerja masing-masing berbanding dengan ahli farmasi yang lain. Pendapatan sebulan melebihi RM 8000 dan peluang kenaikan pangkat dalam suatu organisasi jelas menunjukkan kadar kepuasan kerja yang tinggi di kalangan ahli farmasi. Sektor pekerjaan dan tempoh perkhidmatan tidak mempunyai kesan terhadap kepuasan kerja. Hasil penelitian menunjukkan faktor motivator dan faktor hygiene mempunyai pengaruh signifikan terhadap kepuasan kerja manakala tekanan kerja menyumbang ke arah ketidakpuasan kerja. Keputusan kajian menyokong teori Herzberg yakni faktor motivator lebih penting daripada faktor hygiene dalam memberikan kepuasan kerja. Kajian ini menunjukkan lebih daripada 50% responden hanya mempunyai sekurang-kurangnya kepuasan kerja yang sederhana. Walau bagaimanapun, langkah-langkah sewajarnya boleh diambil bagi meningkatkan lagi tahap kepuasan kerja di kalangan ahli-ahli farmasi di Malaysia.*

*Kata kunci: Kepuasan kerja, ahli-ahli farmasi, teori Herzberg, Malaysia*

### ABSTRACT

*This study was carried out to gauge the level of job satisfaction among pharmacists in Malaysia. Survey forms developed after referring to published studies, were mailed to 1700 pharmacists. Analysis of responses from 405 respondents revealed significant differences in job satisfaction with age, position held and monthly salary. Pharmacists within the age group of 26 to 35 were less satisfied with their work as compared to other pharmacists. A monthly salary of more than RM 8000 and prospects of promotion within an organization contributed to a high level of satisfaction among pharmacists. Sector of work and length of service did not appear to influence job satisfaction. Further analysis indicated that motivator factors and hygiene factors had a*

*significant influence on job satisfaction, whereas job stress contributed toward dissatisfaction at work. The results of the study supported Herzberg's theory, which states the motivator factors were far more important than hygiene factors in providing job satisfaction. From this study, it appeared that more than 50% of the pharmacists who responded had at least a moderate level of job satisfaction. However, efforts can be taken by employers to further improve job satisfaction among Malaysian pharmacists.*

*Key words: job satisfaction, pharmacists, Herzberg's theory, Malaysia*

## INTRODUCTION

Job satisfaction is a very important contributing factor towards a person's motivation and productivity. There are two reasons to be concerned about job satisfaction. Firstly, it may be considered an end in itself because low levels of job satisfaction are associated with low levels of life satisfaction, mental well-being and even poor physical health. Secondly, job satisfaction affects the actions of individuals. In a non-satisfying work environment, one may anticipate avoidance actions on the part of the employee (Noel et al. 1982).

The concept of job satisfaction has numerous definitions. According to Vroom (1964), job satisfaction is the reaction of the workers against the role they play in their work. Similarly, Barnett and Kimberlin (1984) define job satisfaction as a total of the sentiments related with the job conducted. If the worker perceives that his/her values are realized within the job, his/her attitude and satisfaction towards his/her job will be more positive.

Other studies have shown that there are many factors affecting job satisfaction. Seashore and Taber (1976) have summarized the principal classes of variables thought to be causally related to job satisfaction as environmental (political and economic environment, organization environment and job environment) and individual (demography, stable personality, abilities, perception, cognitions, expectations, transient personality traits).

In the late 1950's, Frederick Herzberg developed the *Hygiene-Motivator Theory*. According to Herzberg's Theory, *hygiene* issues cannot motivate employees but can minimize dissatisfaction, if handled properly. In other words, they can only dissatisfy if they are absent or mishandled. *Hygiene* topics include company policies, supervision, salary, interpersonal relationships and working conditions. They are issues related to the employees' environment. *Motivators*, on the other hand, create satisfaction by fulfilling individuals' needs for meaning and personal growth. Examples of *motivators* are achievement, recognition, meaningfulness of work itself, responsibility and advancement. Once the *hygiene* areas are addressed appropriately, the *motivators* will promote job satisfaction and encourage production (Kevin et al. 2003; Robers 1983). Some of the *hygiene* factors considered in this study were work environment, monthly wages, status

and supervision. If *hygiene* issues are ignored, excellent employees will seek jobs elsewhere, while mediocre employees will stay behind. To begin motivating employees, employers must help employees believe that their work is meaningful (Van Den Berg & Murphy 1997). *Motivator* factors evaluated were recognition, achievement, meaningfulness of work and advancement.

Job stress can be defined as the harmful physical and emotional responses that occur when the requirements of the job do not match the capabilities, resources, or needs of the worker. Job stress can lead to poor health and even injury (Dowell & McLeod 2001).

The concept of job stress is often confused with challenge, but these concepts are not the same. A challenge energizes psychologically and physically, and it motivates a person to learn new skills and master jobs. When a challenge is met, employees feel relaxed and satisfied. Thus, challenges are important ingredients for healthy and productive work (Cox 1978).

Nearly everyone agrees that job stress results from the interaction of workers and their conditions of work. Views differ, however, on the importance of worker characteristics versus working conditions as the primary cause of job stress. Although the importance of individual differences cannot be ignored, scientific evidence suggests that certain working conditions are stressful to most people (Cooper & Marshall 1976). Excessive workload demands and conflicting expectations are good examples. Such evidence argues for a greater emphasis on working conditions as the key source of job stress, and redesigning job conditions as primary prevention strategy (Cox 1978).

The pharmacy profession has been evolving steadily over the last decade, in the face of social and demographic trends in Malaysia. The role of the pharmacist has expanded from that of solely supplying medications to being a provider of pharmaceutical care to ensure that patients obtain maximum benefit from their medications. Given the changes brought about by the movement toward pharmaceutical care, further study into the relationship between job satisfaction and work related activities seemed warranted.

It is important to assess the impact of these changes on the quality of health care delivery and the way pharmacists view their job (Kevin et al. 2003). The objectives of this study were to gauge the level of job satisfaction among pharmacists working in different areas, to compare the level of job satisfaction with respect to age, work sector, positions held, remuneration and length of service. In addition, the correlation between motivator factors, hygiene factors and job stress with the total job satisfaction scores and factors contributing to job contentment based on Herzberg's Theory were identified (Herzberg et al. 1959).

## METHODS

Questionnaires were designed and pre-tested on a few pharmacists to determine its clarity and validity. The questionnaire together with a cover letter explaining the purpose of the study and a stamped addressed envelope (for returning the completed questionnaire) were sent to 1700 pharmacists who were on the mailing list of the Malaysian Pharmaceutical Society. Where e-mail addresses were available, a copy of the survey instrument was also sent to some pharmacists via e-mail. Respondents were asked to complete the questionnaire and return them via mail, fax or e-mail.

The questionnaire assessed demographic details, job satisfaction and sources of job stress. Twenty statements pertaining to job satisfaction were used in this survey. The respondents were asked to respond using a five-point Likert scale. The choices were: 1) strongly disagree 2) disagree 3) neither agree nor disagree 4) agree 5) strongly agree.

Data were analyzed using the Statistical Package for Social Sciences Version 11.5. Descriptive data were presented as percentages whereas discrete data were analyzed using One-Way Analysis of Variance (ANOVA), Post Hoc Tukey, Pearson Correlation and Regression Analysis.

## RESULTS

Questionnaires were sent to 1700 pharmacists. However, only 425 pharmacists responded. Twenty responses were not included in the analysis because they were not completed appropriately or were received after the deadline. Therefore, only 405 questionnaires were considered giving a response rate of 23.8%.

Table 1 shows selected demographic characteristics of the respondents. A majority of the subjects were female. Chinese pharmacists constituted approximately half of the respondents. Pharmacists' ages ranged from 23 to 58, with most of the respondents within the 26 to 35 age group. About 82.2% of pharmacists held the Bachelor of Pharmacy degree and only 4.4% had doctorate degrees (PhD). The majority of those with a masters degree had a Masters in Clinical Pharmacy. No differentiation was made between a MPharm undergraduate degree and a postgraduate masters degree. Most pharmacists worked in the community pharmacy setting. In addition, many pharmacists were employed in hospitals. Pharmacists held a wide variety of positions within an organization. A majority of them were junior level employee pharmacists and some of them had advanced to positions as managers and deputy directors. More than 50% of the respondents had less than 10 years of working experience.

The overall level of job satisfaction is given in Figure 1. In general, pharmacists appeared to have given the middle or more neutral response. Almost an equal percentage of pharmacists reported a low (11.9%) and high (12.3%) rate of satisfaction with regard to their jobs respectively.

TABLE 1. Demographic profile of respondents

Demographic Profile	Pharmacists	
	Frequency (N)	Percentage (%)
Gender		
Male	152	37.7
Female	251	62.3
Ethnicity		
Malay	105	26.4
Chinese	257	64.7
Indian	35	8.8
Age (years)		
<25	7	1.8
26-35	252	63.8
36-45	78	19.7
46-55	53	13.4
>55	5	1.3
Highest Academic Qualification		
B.Pharm	332	82.2
Masters	34	8.4
MBA	20	5.0
PhD	18	4.4
Sector of Work		
Hospital	121	29.9
Industry	71	17.5
Academia	49	12.1
Community pharmacy	161	39.8
Others	3	0.7
Length of Service (years)		
1-10	200	65.1
11-20	60	19.5
21-30	41	13.4
31-40	6	2.0
Position Held		
Pharmacist	212	52.5
Chief Pharmacist	15	3.7
Manager	107	26.5
Deputy Director	16	4.0
Lecturer	16	4.0
Others	38	9.4
Monthly Salary		
RM 1000 - RM 2000	40	10.1
RM 2000 - RM 5000	241	60.7
RM 5000 - RM 8000	82	20.7
>RM 8000	34	8.5

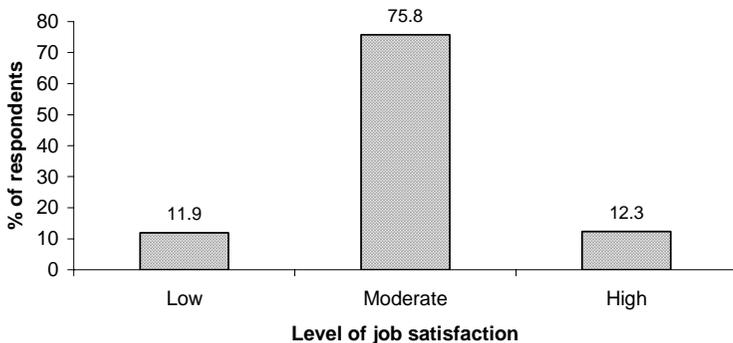


FIGURE 1. The level of job satisfaction among Malaysian pharmacists

Table 2 shows the pharmacists' job satisfaction according to age, sector of work, position held, monthly wages and length of service. One-way analysis of variance revealed significant difference between age and job satisfaction. Among the respondents, the 26 to 35 age group reported the lowest mean scores, whereas pharmacists who were more than 55 years of age derived the highest level of job satisfaction. There was no significant difference in satisfaction with regard to sector of work. However, respondents working in the industry and academia appeared to have the highest scores compared to other groups. Pharmacists holding higher positions in an organization expressed greater job satisfaction. High level of job contentment was observed among pharmacists earning more than RM 8000. It was evident that level of satisfaction increased as the income earned per month multiplied. Based on statistical analysis, there was no significant difference in overall work satisfaction with respect to pharmacists' length of service. However, there appeared to be a trend towards greater job satisfaction with increasing length of service.

Job satisfaction positively correlated with hygiene and motivator factors whereas job stress had a negative impact (Table 3).

By using multiple regression analysis as shown in Table 4, the results of this study indicate that *motivator* factors contributed 67.1% towards job satisfaction compared to 65.1% by *hygiene* factors.

Job stress was a major negative contributor (55.6%) towards job contentment among pharmacists.

## DISCUSSION

The total number of registered pharmacists in Malaysia in 2005 (as given in the annual report of the Pharmacy Board of Malaysia) was 4351. However, it was not possible to survey all the registered pharmacists, thus 1700 who were on the mailing list of the Malaysian Pharmaceutical Society were sampled. This figure

TABLE 2. Level of Pharmacists' Job Satisfaction

Category	Mean $\pm$ SD Job Satisfaction Score (n = 405)	F Statistic <sup>a</sup>	p Value
Age (years)			
<25	66.6 $\pm$ 0.26	3.165	0.014**
26-35	66.3 $\pm$ 1.44		
36-45	68.0 $\pm$ 1.70		
46-55	70.3 $\pm$ 1.59		
>55	74.0 $\pm$ 1.15		
Sector of Work			
Hospital	67.2 $\pm$ 1.02	1.734	0.126
Industry	70.1 $\pm$ 0.46		
Academia	69.6 $\pm$ 0.67		
Community pharmacy	67.2 $\pm$ 1.97		
Others	64.0 $\pm$ 1.48		
Position Held			
Pharmacist	66.1 $\pm$ 1.46	3.748	0.003**
Chief Pharmacist	66.9 $\pm$ 1.97		
Manager	69.5 $\pm$ 0.84		
Deputy Director	71.4 $\pm$ 0.60		
Lecturer	70.1 $\pm$ 1.56		
Others	64.6 $\pm$ 1.67		
Monthly Salary			
RM 1000 - RM 2000	64.6 $\pm$ 1.70	8.298	0.000**
RM 2000 - RM 5000	66.3 $\pm$ 1.67		
RM 5000 – RM 8000	68.9 $\pm$ 1.11		
> RM 8000	73.1 $\pm$ 1.59		
Length of Service (years)			
1-10	66.8 $\pm$ 1.70	2.243	0.083
11-20	67.8 $\pm$ 1.97		
21-30	69.8 $\pm$ 1.36		
31-40	73.5 $\pm$ 1.17		

<sup>a</sup> Derived from one-way analysis of variance

\*\* Significant at  $p < 0.05$

represented approximately 39.1 % of Malaysian pharmacists. The response rate to the survey was very poor (23.8%). Although disappointing, this was not uncommon because results from studies by Zgarrick and MacKinnon (1998), Bond and Raehl (2001) and David (2000) reported response rates of 28.8%, 34.1% and 49.0% respectively.

A majority of the pharmacists reported a moderate level of job satisfaction and 12.3% of them had achieved a high level of work satisfaction. However, 48 respondents (11.9%) reported low levels of satisfaction. Other studies on job

TABLE 3. Correlation between *motivator* factors, *hygiene* factors and job stress with job satisfaction

Variables	Correlation Coefficient (r)	p Value
<i>Motivator</i>	0.819	0.009**
<i>Hygiene</i>	0.807	0.007**
Job Stress	- 0.745	0.004**

\*\* p < 0.01, Pearson correlation

TABLE 4. Regression Analysis between *motivator* factors, *hygiene* factors and job stress with job satisfaction

Variables	B	SE $\beta$	R <sup>2</sup>	p Value
<i>Motivator</i>	1.818	0.063	0.671	0.000***
<i>Hygiene</i>	2.401	0.088	0.651	0.000***
Job Stress	-1.545	0.069	0.556	0.000***

\*\*\* p < 0.001

satisfaction among hospital pharmacists suggested that they were not highly satisfied with their work. Johnson, Hammel and Heinen (1977) found that an overall pattern of less job satisfaction existed among hospital pharmacists than was found among a stratified random sample of professional, managerial, and nonprofessional workers. It was surprising that reported levels of job satisfaction for hospital pharmacists were lower than for the average working person because, as a profession, pharmacists might be expected to carry out more satisfying work than blue-collar employees.

On the contrary, Noel et al. (1982) reported that pharmacists appeared to be more satisfied than support personnel and as satisfied as blue-collar workers. In addition, Sanagiry and Caroline (2003) demonstrated that hospital pharmacists at the Texas Medical Centre were satisfied with their jobs.

Overall job satisfaction in this study was found to be related to age, positions held and monthly wages of the respondents. However, job satisfaction did not vary according to sector of work and length of service. The younger pharmacists were less satisfied than older pharmacists. Previous research has suggested that this may be due to increased extrinsic rewards of work attained by older workers, including income, occupational prestige, authority, and autonomy. It is possible that the results were influenced by the relatively high proportion of pharmacists in the younger age group in this study (Locke 1976).

Similarly, Schwebel (1951) also found that an increasing percentage of pharmacists were satisfied in older age categories. Even Noel et al. (1982) looking at specific job facets of hospital pharmacists, reported that satisfaction was

lowest at age 23 to 28 on all 13 facets and highest at 40 to 50 on 10 of the 13 facets. Therefore, age can be considered as an important element related to job satisfaction among pharmacists.

#### SECTOR OF WORK

This study showed that pharmacists working in industry, academia and community pharmacy had average job satisfaction scores.

Other studies commonly compared hospital pharmacists with community pharmacists. Schewebel (1951) observed that a significantly greater percentage of community pharmacists were dissatisfied and a significantly greater percentage of hospital pharmacists were satisfied with their careers.

Meanwhile, Toffey (1978) found more chain store pharmacists than hospital pharmacists, and more hospital pharmacists than independent pharmacists, were satisfied with their job. On the other hand, while comparing hospital, independent and chain store pharmacists, Robers (1983) concluded that chain store pharmacists were significantly less satisfied with their work than either hospital or independent store pharmacists.

#### POSITION HELD

Pharmacists holding higher positions in the occupational hierarchy were more satisfied with their jobs. Similarly, Donehow and Hammerness (1978) found that supervisors were significantly more rewarded than staff by *hygiene* factors (for example company policy, working conditions, salary, status and security). Although Schewebel (1951) reported no significant difference between owners and employees, however when he compared the most satisfied pharmacists with the most dissatisfied, owners appeared more often in the satisfied group. Hospital chief pharmacists when compared with staff pharmacists reported more satisfaction with salary, advancement and work schedule and greater general satisfaction in their work (Robers 1983).

#### SALARY

Monthly wages seems to play a primary role in promoting job satisfaction for the entire sample in this study. Insofar as pay is one of the most important components in determining job satisfaction, hence the mean score of job satisfaction drops as we move from the highest income group to the lowest income group in this study.

On the contrary, Akroyd et al. (1994) found that salary appeared to be of relatively minor importance in determining job satisfaction. Salary is usually one of the factors that many employers focus on to recruit or retain employees. However, in the study by Kevin et al (2003), salary was of secondary importance.

## LENGTH OF SERVICE

The pharmacists' level of job satisfaction was not significantly different with respect to length of service. Schultz (1973) in his study found that no significant differences existed between job satisfaction and years of experience except when extremely satisfied or dissatisfied pharmacists were compared. They found a greater percentage of pharmacists who were extremely satisfied with their jobs as the number of years in a particular job increased.

On the other hand, both Donehew and Hammerness (1978) and Noel et al (1982) found that job tenure was related to pharmacists' job satisfaction. Significantly different peaks were found at 4 to 6 years and greater than 21 years. People in a job position longer than 6 years seemed most satisfied according to Noel's study, while people at a job only for 13 to about 24 months were least satisfied.

A significant relationship exists between *motivator* factors, *hygiene* factors, job stress and work satisfaction. The results of the multiple regression analysis provided evidence that *motivator* such as recognition, self-achievement, meaningfulness of work and advancement contributed most to the job satisfaction of respondents. These findings corresponded with the fact that intrinsic features (*motivator*) are better predictors of job satisfaction than extrinsic (*hygiene*) stimuli as stated by Herzberg's *Hygiene-Motivator* theory.

Findings confirm Herzberg's (1959) contention about the importance of ensuring that hygienic type factors do not in themselves adversely affect job satisfaction but that these factors, for example working conditions, salary company policies, supervision, and interpersonal relationships must be maintained at an acceptable level before higher order satisfaction needs, such as personal growth, can be attained.

Limitations in this study were mainly attributed to the questionnaires being distributed by mail. It was not feasible to determine if all pharmacists received the survey forms and no way to ensure that they returned them. Anonymous responses were encouraged to foster candid and unbiased responses. Nevertheless, some respondents did not complete the demographic information and satisfaction responses. Besides, this study was not validated against the target population. Therefore, the results may not accurately reflect the views of the majority Malaysian pharmacists. The low rate of response was another problem that made the comparison of results and generalization difficult.

## CONCLUSION

This study, which corroborates some previous surveys among pharmacists, indicates that the pharmacy profession can do more to improve pharmacists' attitude and motivation. Low to moderate levels of satisfaction will lead to a low

level of commitment to the job and profession. If the profession is to grow to its full potential, consideration must be directed toward improving satisfaction among pharmacists.

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## NOTA PENGARANG

*Jurnal Sains Kesihatan Malaysia* menerbitkan rencana dalam Bahasa Melayu dan Inggeris meliputi pelbagai bidang sains perubatan dan kesihatan seperti audiologi, biokimia, pergigian, dietetik, pengimejan perubatan, sinaran perubatan, pemakanan, optometri, farmakologi, farmasi, fisiologi, fisioterapi, terapi cara kerja, sains forensik, kesihatan masyarakat, psikologi kesihatan, kesihatan persekitaran, sains pertuturan dan sains sukan. Jurnal ini menjadi suatu arena untuk menyebarkan penemuan terbaru dalam penyelidikan dan pembangunan sains perubatan dan kesihatan, termasuk kaedah dan hasilan penyelidikan yang membawa kepada penemuan bahan biologi aktif, pembangunan teknik baru, laporan kes, kegunaan klinikal dadah, teknik pengesanan penyakit dan rawatan, farmaseutikal dan hasilan semulajadi. *Komunikasi ringkas* dan *artikel ulasan* juga akan diterima untuk diterbitkan dalam jurnal ini.

*Komunikasi ringkas* yang menerangkan penemuan asli dan memerlukan penerbitan segera akan juga dipertimbangkan penerbitannya di dalam jurnal ini. Komunikasi ringkas perlu dihadkan kepada enam mukasurat bertaip sahaja termasuk jadual, ilustrasi dan rujukan. Jadual dan ilustrasi perlulah dalam bilangan yang minimum. Setiap komunikasi ringkas perlu dimulakan dengan pengenalan ringkas. Naskhah komunikasi ringkas tidak perlu dipecahkan kepada bahagian sepertimana kertas penuh, walau bagaimanapun susunan perenggan boleh mengikut pertimbangan pengarang sendiri. Prosedur penyuntingan dan penerbitan akan dipercepatkan untuk menyegerakan penerbitan. Umumnya, naskhah komunikasi ringkas akan sama ada diterima atau ditolak. Naskhah komunikasi ringkas yang memerlukan pembetulan *major* berdasarkan kepada komen pengadil tidak akan diterima.

*Artikel ulasan* adalah komentar atau huraian yang mengandungi penjelasan, kritik atau pendapat mengenai sesuatu perkara dan ditulis tidak melebihi lima belas muka surat. Artikel ulasan juga akan diadili dan proses penerbitannya juga akan dipercepatkan.

## PENYERAHAN NASKHAH ASAL

Semua naskhah asal perlu disertakan dengan suatu pernyataan yang jelas bahawa kerja yang dilakukan tidak pernah diterbitkan di dalam mana-mana penerbitan dan tidak berada di bawah penilaian mana-mana jurnal lain. Jika terdapat lebih daripada seorang pengarang, suatu pernyataan yang jelas perlu dibuat di dalam surat penyerahan bahawa SEMUA pengarang bersama telah bersetuju dalam penyerahan naskhah asal tersebut. Borang persetujuan yang ditandatangani oleh semua pengarang hendaklah diserahkan bersama-sama dengan naskhah asal yang dihantar. Pengarang perlu menyimpan salinan kepada semua bahan

yang diserahkan. Naskhah asal tidak akan dikembalikan dan salinan asal kepada kerja grafik hanya akan dikembalikan jika dinyatakan secara spesifik pada ilustrasi tersebut. Untuk membantu memastikan bahawa kertas akan dinilai oleh penilai yang bersesuaian, pengarang boleh mencadangkan nama dua orang pengadil (berserta alamat, faks dan alamat mel elektronik) yang tidak terlibat secara langsung dengan kerja penyelidikan yang diserahkan. Para penyunting mempunyai hak untuk memilih pengadil selain daripada yang dicadangkan. Tiga salinan naskhah asal beserta jadual dan ilustrasi perlu diserahkan kepada Ketua Penyunting Jurnal Sains Kesihatan Malaysia:

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Teks utama naskhah asal tidak boleh melebihi 15 muka surat bertaip dan dipecahkan kepada bahagian seperti berikut : PENDAHULUAN – Mengandungi maklumat mengenai latar belakang, kepentingan dan objektif kajian tanpa mengulangi apa yang telah dinyatakan di dalam abstrak atau menyimpulkan keputusan kajian. BAHAN DAN KAEDAH – Nyatakan kaedah kajian dengan terperinci dan bahan yang digunakan termasuk bilangan subjek. Nyatakan juga kaedah analisis data yang digunakan. Bagi kajian ke atas manusia, nyatakan dalam perenggan pertama sama ada kelulusan etika penyelidikan dan persetujuan menyertai kajian oleh subjek telah diperolehi atau tidak. HASIL KAJIAN – Hasil kajian perlu dipersembahkan dalam urutan yang jelas dan logik. PERBINCANGAN – Beri penekanan dalam aspek peningkatan keilmuan yang diperolehi daripada kajian. KESIMPULAN – Simpulkan keputusan dan hasil utama yang diperolehi. Bahagian PENGHARGAAN, RUJUKAN, JADUAL dan RAJAH seharusnya mengikuti teks utama dan ditaip di atas muka surat berasingan. Penggunaan nota kaki adalah tidak digalakkan. Kemunculan jadual dan rajah mengikut urutan di dalam teks utama perlu dinyatakan dengan jelas di dalam teks.

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Rujukan kepada artikel, buku, bab dalam buku, monograf atau mana-mana penerbitan lain di dalam teks perlu mengandungi nama pengarang diikuti dengan tahun penerbitan tanpa penggunaan tanda baca di antara nama dan tarikh misalnya, (Ismail 1997) atau Ismail (1997). Dalam senarai rujukan, rujukan disusun

mengikuti abjad. Rujukan perlu disingkatkan menggunakan gaya yang digunakan di dalam *Index Medicus* atau *the World List of Scientific Periodicals*, Edisi Ke-4. Hasil penulisan yang tidak diterbitkan atau penulisan peribadi tidak boleh disenaraikan tetapi boleh dinyatakan di dalam teks. Hasil penulisan yang telah diterima untuk penerbitan tetapi belum diterbitkan boleh juga disenaraikan tetapi dinyatakan sebagai “Akan diterbitkan”. Pengarang adalah bertanggungjawab untuk memastikan setiap rujukan ditulis dengan betul dan mendapat kebenaran daripada pengarang berkenaan untuk rujukan yang belum diterbitkan.

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Fatimah Abdullah. 1995. Pola sosialisasi kanak-kanak keluarga Melayu bandar. *Jurnal Antropologi dan Sosiologi* 22: 55-71.

Puybasset, L., Giudicelli, J. F. & Berdeaux, A. 1997. Coronary effects of exogenous and endogenous bradykinin in conscious dogs. *Fundam. Clin. Pharmacol.* 11: 322 - 330.

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Brown, H. & Kozlowski, H. 1997. *Physiology and pharmacology of the heart*. Oxford: Blackwell Science.

Buku suntingan, penulisan rujukan adalah seperti berikut;

Friston, K. J. 2004. Experimental Design and Statistical Parametric Mapping. Dlm. *Human Brain Function (Edisi kedua)*, disunting oleh R. S. J. Frackowiak, K. J. Friston, C. D. Frith, R. J. Dolan, C. J. Price, S. Zeki, J. Ashburner dan W. D. Penny. Amsterdam: Elsevier Academic Press.

Marshall, J. 1997. Pharmacologic treatment of gastrointestinal malignancies, In *Current clinical topics in gastrointestinal pharmacology*, edited by J. H. Lewis and A. DuBois. Boston: Blackwell Science.

## JADUAL DAN ILUSTRASI

Hanya enam ilustrasi sahaja dibenarkan untuk setiap naskhah asal. Pengarang hendaklah memastikan bahawa setiap ilustrasi adalah bersesuaian dengan teks dan ilustrasi dipersembahkan mengikut tertib ia disebutkan di dalam teks. Pembesaran dan prosedur pewarnaan (*staining*) mesti dinyatakan dengan jelas pada foto mikrograf. Jadual, lukisan garis dan fotograf perlu dinomborkan dengan angka Arab (misalnya 1, 2). Saiz ilustrasi yang diserahkan untuk penerbitan perlu dalam ukuran sedia untuk diterbitkan (lebar 88 mm atau jika perlu 184 mm dan tidak melebihi  $230 \times 184$  mm termasuk tajuk ilustrasi). Jika saiz ilustrasi perlu dikecilkan, pengarang hendaklah menyatakannya pada ilustrasi yang diserahkan. Tajuk jadual dan ilustrasi perlu ringkas dan dengan sendirinya menerangkan jadual dan ilustrasi. Elakkan menggunakan penerangan yang diberikan di dalam teks sebagai tajuk jadual dan ilustrasi.

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## SUBJEK KAJIAN

Jika naskhah asal yang ingin diterbitkan adalah hasil kajian ke atas manusia, dalam bahagian Bahan dan Kaedah naskhah asal tersebut mestilah mengandungi pernyataan bahawa kajian yang dilakukan telah mendapat kelulusan Jawatankuasa Etika Penyelidikan Perubatan dan subjek telahpun menyatakan persetujuan untuk menyertai kajian. Pengarang hendaklah sedar mengenai *Code of Ethics of the World Medical Association (Declaration of Helsinki)*, yang telah diterbitkan di dalam *British Medical Journal* (18 Julai 1964). Sekiranya kajian menggunakan haiwan, dalam bahagian Bahan dan Kaedah, perlu dinyatakan langkah yang diambil untuk mengurangkan kesakitan dan ketidakselesaan ke atas haiwan. Kajian perlu dilakukan mengikut ketetapan *the European Communities Council Directive of 24 November 1986 (86/609/EEC)* atau mengikut garis panduan yang telah ditetapkan oleh *NIH USA* mengenai penjagaan dan penggunaan haiwan dalam prosedur penyelidikan atau mengikut kaedah yang telah ditetapkan oleh mana-mana Jawatankuasa Etika Penyelidikan Haiwan. Pengarang juga perlu menyatakan di dalam bahagian Kaedah, bahawa kajian yang dilakukan telah mendapat kelulusan daripada jawatankuasa tersebut. Penyunting berhak menolak kertas yang diserahkan sekiranya merasa ragu-ragu dengan prosedur penyelidikan yang digunakan.

## HAK CIPTA

Penerbit UKM mempunyai hak cipta ke atas penerbitan Jurnal Sains Kesihatan Malaysia. Tiada bahagian daripada jurnal ini boleh diterbitkan semula, disimpan untuk pengeluaran atau ditukarkan ke dalam sebarang bentuk atau dengan sebarang alat juga pun, sama ada dengan secara elektronik, gambar serta rakaman dan sebagainya tanpa kebenaran bertulis daripada penerbit UKM terlebih dahulu.

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Penghargaan kepada wasit Jilid 5(2) 2007  
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