

**TESIS**

**PENGARUH FAKTOR ERGONOMI TERHADAP *MUSCULOSKELETAL DISORDERS* (MSDs) DI RSU HAJI SURABAYA  
(Studi pada Perawat di Instalasi Rawat Inap)**



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**UNIVERSITAS AIRLANGGA  
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PROGRAM MAGISTER  
PROGRAM STUDI KESEHATAN DAN KESELAMATAN KERJA  
SURABAYA  
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**TESIS**

**Untuk memperoleh gelar Magister Kesehatan dan Keselamatan Kerja (M.KKK)  
Program Studi Kesehatan dan Keselamatan Kerja  
Fakultas Kesehatan Masyarakat  
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SURABAYA  
2015**

## PENGESAHAN

**Dipertahankan di depan Tim Penguji Tesis  
Program Studi Kesehatan dan Keselamatan Kerja  
Fakultas Kesehatan Masyarakat Universitas Airlangga  
dan diterima untuk memenuhi persyaratan guna memperoleh gelar  
Magister Kesehatan dan Keselamatan Kerja (M.KKK)  
pada tanggal 9 Maret 2015**



**Mengesahkan**

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Ketua : Prof. Dr. Tjipto Suwandi, dr., M.OH., Sp.Ok  
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2. Dr. Hari Basuki N., dr., M.Kes  
3. Dr. Sri Widati, S.Sos., M.Si  
4. Dr. Ririh Yudhastuti, drh., M.Sc  
5. Sahabat Sutanto, S.KM., M.Kes

**PERSETUJUAN**

**TESIS**

**Diajukan sebagai salah satu syarat untuk memperoleh gelar  
Magister Kesehatan dan Keselamatan Kerja (M.KKK)  
Program Studi Kesehatan dan Keselamatan Kerja  
Fakultas Kesehatan Masyarakat  
Universitas Airlangga**

**Oleh :**

**RATNA FAJARIANI  
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**Menyetujui,  
Surabaya, tanggal 9 Maret 2015**

**Pembimbing Ketua**

**Pembimbing**

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**Dr. Y. Denny Ardyanto W., Ir., M.S.  
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## PERNYATAAN TENTANG ORISINALITAS

Yang bertanda tangan di bawah ini, saya :

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Program studi : Kesehatan dan Keselamatan Kerja  
Angkatan : 2012  
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menyatakan bahwa saya tidak melakukan kegiatan plagiat dalam penulisan tesis saya yang berjudul:

PENGARUH FAKTOR ERGONOMI TERHADAP *MUSCULOSKELETAL DISORDERS* (MSDs) DI RSU HAJI SURABAYA (Studi pada Perawat di Instalasi Rawat Inap)

Apabila suatu saat nanti terbukti saya melakukan tindakan plagiat, maka saya akan menerima sanksi yang telah ditetapkan.  
Demikian surat pernyataan ini saya buat dengan sebenar-benarnya.

Surabaya, 9 Maret 2015

(Ratna Fajariani)

## KATA PENGANTAR

Puji syukur kehadiran Allah SWT, karena atas Karunia dan Hidayah-Nya penyusunan tesis dengan judul **“Pengaruh Faktor Ergonomi terhadap *Musculoskeletal Disorders* (MSDs) di RSUD Haji Surabaya (Studi pada Perawat di Instalasi Rawat Inap)”** dapat terselesaikan.

Tesis ini berisikan mengenai gambaran *Musculoskeletal Disorders* (MSDs) pada perawat di rumah sakit, khususnya perawat di rawat inap. Penelitian ini menganalisis pengaruh faktor ergonomi terhadap *Musculoskeletal Disorders* (MSDs) sehingga diharapkan adanya upaya pencegahan oleh pihak manajemen untuk mengurangi risiko terjadinya *Musculoskeletal Disorders* (MSDs) pada perawat.

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3. Dr. Y. Denny Ardyanto W., Ir., M.S, selaku Ketua Program Studi Magister Kesehatan dan Keselamatan Kerja, Fakultas Kesehatan Masyarakat, Universitas Airlangga.
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Demikian, semoga tesis ini bisa memberi manfaat bagi diri kami sendiri dan pihak lain yang menggunakan.

Surabaya, 9 Maret 2015

Penulis

## SUMMARY

### **THE INFLUENCE OF ERGONOMIC FACTOR TO *MUSCULOSKELETAL DISORDERS (MSDs)* AT RSU HAJI SURABAYA (Study among Nurses at Inpatient Care Installation)**

Hospital is one of health care service center for public and also a workplace for workers who have risks to their health, especially for nurses. Nurses have one of the highest rates of *Musculoskeletal Disorders (MSDs)* compared with other occupations. MSDs are described as disorders or discomforts experienced by the workers on the musculoskeletal, peripheral nervous, and neurovascular systems, due to the exposure of prolonged workplace hazards. MSDs are reported give more significant impact on the quality of life, cause loss of work time or absenteeism, increase work restriction, transfer to another job, or bring disabilities than any other group of diseases with a considerable economic toll on the individual, the organization and the society as a whole.

The general objective of this research was to analyze the influence of ergonomic factor to *Musculoskeletal Disorders (MSDs)* among nurses at inpatient care installation of RSU Haji Surabaya, especially for unit 1 C. The specified objects for this research were : 1) Analyzed the appropriate of work stations to nurse anthropometric, 2) Analyzed the work posture of nurses, 3) Analyzed *Musculoskeletal Disorders (MSDs)* among nurses, 4) Analyzed influence perception of work stations to work posture of nurse, 5) Analyzed the influence of individual characteristics and work posture to *Musculoskeletal Disorders (MSDs)* among nurses, 6) Studied the management controls, including the policy, monitoring, and follow-up by management.

This research was conducted in August 2014 - January 2015. The total sample used in the research were 15 people who worked as nurse at RSU Haji Surabaya. The steps used in collecting the data were observing work posture of nurses by using *Rapid Entire Body Assessment (REBA)* technique, measuring nurse anthropometric, measuring work stations, distributing the individual questionnaire of characteristics, measuring *Musculoskeletal Disorders (MSDs)* by using Nordic Body Map questionnaire that was given in pre and post condition for three times chronologically, and doing in-depth interview with management. In this research, data was analyzed by using descriptive and statistic methods by Categorical Regression.

There were three kinds of work stations at unit 1 C RSU Haji Surabaya. Based on the nurse anthropometric and the dimension of work stations, we could analyze that the first work station was appropriate to nurse anthropometric, whereas the second and the third work stations were not appropriate to nurse anthropometric. It was appropriate if the height of the patient bed hospital was under of elbow height at standing position and it was adjustable. The nurse's perception to work station was 73,3% felt comfortable with workstation and the



others did not feel so. The result of measuring the work posture was 86,67% including not ergonomic posture.

According to Nordic Body Map, we got that the highest *Musculoskeletal Disorders* at nurses was in the low back (72,2%), followed by upper back (66,67%), upper neck (58,83%), hips (38,89%), right and left legs (each of its 36,11%). The perception of work station influenced the work posture was only 7,6%. Statistic calculation showed that individual characteristics and work posture influenced MSDs at nurses around 47,4% (R square = 0,474). The greatest influencing variable was gender, followed by work posture, duration of work, age, habit of smoking, habit of exercise, and body mass index (BMI). It was showed by coefficient beta from categorical regression analysis.

The management controls, including the policy, monitoring, and follow-up by management were on process to apply the ergonomic and socialization to all employee at RSU Haji Surabaya. The problem faced by management was unavailability of an incident or accident reporting system that has not been systematic work well. It was an obstacle for monitoring the health of all employees. Engineering controls and training program are recommended to minimize MSDs at nurses.

