



## The Effect of Habitus and Work Attitude on Low Back Pain Complaints of Manual Handling Workers or Porters in Benjaran Market Tegal

Pipit Indra Lestari<sup>✉</sup>, Soesanto Soesanto, Yuni Wijayanti

Universitas Negeri Semarang, Indonesia

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### Abstract

Low Back Pain is an acute pain in the fifth lumbar area and sacralis (L5-S1). It is a musculoskeletal disorder that usually caused by various musculoskeletal diseases, psychological disorders, and incorrect mobilization. There are still high cases of Low Back Pain in Tegal, mainly suffered by the manual handling workers or porters. This study has purpose to analyze the effect of Habitus and Work Attitude on the complaints of Low Back Pain. The type of this study was an analytic survey research conducted by using a cross sectional design. The population used in this study was the manual handling workers or porters in Benjaran Market, Tegal. The sampling was done using an accidental sampling technique. Then, the analysis was done using Bivariate analysis of chi-square and multivariate analysis with multiple linear regressions. The results of analysis using 57 respondents showed that there is an effect of Habitus and Work Attitudes on Low Back Pain complaints of manual handling workers or porters in Benjaran Market, Tegal. Based on the results of this study, it is suggested to periodically check the health condition of the manual handling workers or porters and take precautions that are necessary to do muscle activity before doing the physical activity, and it is recommended to do exercise in 30 or 45 minutes, 3 or 5 times a week.

<sup>✉</sup>Correspondent Address:

Kampus Unnes Jl Kelud Utara III, Semarang, 50237, Indonesia  
E-mail: [pipitindralestari16@gmail.com](mailto:pipitindralestari16@gmail.com)

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## INTRODUCTION

An acute pain in the area of the fifth lumbar and sacral (L5-S1) is referred to as Low Back Pain. This pain is usually felt by the sufferer and can occur clearly or vaguely and spread or localized, (Defriyan, 2011).

Radiopetro, (1981) argues that Habitus or body constitution or somatotype is a physical or somatic form that humans possess as a result of the interaction between the genetic and the environmental factors. The method of classifying the shape of the human body has been carried out since around 400 BC by Hippocrates (Withers, 1986). Sheldon developed this method of body shape classification and over the last two decades the body has been widely used in the research. Currently, many experts have developed a classification method for the shape of the human body such as Kretschmer. Habitus dimensions include Endomorph, Mesomorph, and Ectomorph. According to Kretschmer, postures include Leptosome, Athletics, and Picnics, (Sumartiningsih, 2011).

According to data from BPJS Ketenagakerjaan, work accident cases have increased, in 2017 the number of work accidents was reported to be 123,041 cases and in 2018 the number of cases increased by 173,105 cases each year the average work accident cases were 130 thousand each year, (BPJS, Ketenagakerjaan, 2018).

The International Labor Organization (ILO) records more than 2 million deaths each year due to occupational accidents and diseases. As many as 300,000 people died from the 250 million accidents and the rest were deaths due to occupational diseases. In 2013, the International Labor Organization (ILO) stated that every 15 seconds, a worker dies due to a work accident and around 160 workers experience illness due to work, (Directorate of Health and Sports Development, 2016).

The results of a study conducted by Pokdi Nyeri PERDOSSI (Indonesian Association of Neurologists) in Cipto Mangunkusumo Hospital (RSCM) polyclinic in 2002 determined that there

were 15.6% of Low Back Pain sufferers. This figure is the second highest after cephalgia and migraine, reaching 34.8%. From the results of a national research conducted in 4 cities in Indonesia as well as by the PERDOSIS pain study group in 2002, 18.13% of Low Back Pain sufferers were found, (Huldani, 2012).

In the United States, more than 60 to 80% of adults have complained about Low Back Pain, this situation causes considerable losses to the medical costs and the lost working hours (Yanra, 2013). Whereas, in Indonesia it is estimated that the number is even higher and 90% of the cases of low back pain are not caused by organic disorders, but by a wrong position in the body at work (Putranto, 2014).

In Germany, about 30% of the population suffer from Low Back Pain, and 125 of them experience it every day. Back pain occupies the first posture in causing days of work leave (80 million days of work leave/ year) and contributes to a large number of hospitalizations (5 million days of hospitalization / year) (Tarau, 2011).

Based on observations made by several researchers in Tegal, in 2016 there were 1,680 patients suffering from Low Back Pain, especially those who work as laborers. Based on preliminary studies, Tegal benjaran market is the largest market in the city of Tegal. This market is located in the city center, on Jln. Adiwerna. Benjaran Market, Tegal. Activities at Benjaran Market, both modern and traditional markets, take place from 03.00 AM in the morning to 05.00 PM. The manual handling workers or porters who operate in Benjaran Market, Tegal are not only in the traditional market that carries the burden of basic necessities such as sugar rice and major vegetables, and transports clothes, hoods but also in the modern market. Loading and unloading work from midnight to early morning before the start of activities at Benjaran Market, Tegal. The job of lifting goods over the pelvis by the manual handling workers or porters takes place from 03.00 AM to 05.00 PM, to provide goods transportation services using pelvic to consumers who shop at Benjaran Market. Benjaran Market has three floors so that

the consumer needs the service of goods transportation services or porters using pelvic (Riskesdas 2016).

Based on the results of preliminary interviews with the manual handling Workers or porters at Benjaran Market, Tegal. Based on the data taken by the researcher from the Association of Manual Handling Workers or Porters in Benjaran Market, there are a number of 128 people who work as a manual handling workers or porters in the market. The ages of the porters who work in Benjaran Market, Tegal are between 20 years and 60 years. The manual handling workers or porters mostly feel lower back pain since their work starts from 03.00 AM to 05.00 PM, the load carried is from 30 kg to 70 kg.

The manual handling workers or porters require coordination of posture movements and high concentration. Changes in this movement take place very quickly depending on the squatting position and the high frequency of repetition of movements for a long period of time will encourage the emergence of Low Back Pain (Rinaldi, 2015).

Research conducted by Perdani, (2010) stated that the patients of Dr. Kariadi Semarang in the Neurology section has picnic habits ( $p = 0.0001$  and sitting ( $p = 0.0001$ ) there is a relationship between body posture and body position with the complaints of Low Back Pain Research, conducted by Epang (2015) age, gender, index body mass (BMI), work attitude, length of service, duration of work have an effect on Low Back Pain.

The results of research conducted by Setiawan, (2013) stated that construction workers at PT Mikroland Property Development have a work attitude with a high risk of 61.2% and those who have a moderate risk work attitude 38.8% ( $p$ -value = 0.020) which affects the Low Back Pain complaints.

The data above shows that there are still high complaints of Low Back Pain among the manual handling workers or porters. Therefore, in order not to cause higher complaints of Low

Back Pain by the manual handling workers or porters in the market, the researcher conducted a study with the aim of analyzing the effect of Habitus, and Work Attitudes towards the complaints of Low Back Pain in the manual handling workers or porters in Benjaran Market, Tegal.

## METHOD

This type of this study was an analytic survey research using a cross sectional design. The population of this study was Manual Handling Workers or Porters in Pasar Benjaran, Tegal. The sampling technique used in this study was accidental sampling, obtained a sample of 57 respondents. The analysis was done using Bivariate analysis with chi-square and multivariate analysis by using multiple linear regression.

The data collection techniques was done by using interview techniques and examination of doctors using tools in the form of questionnaires, observation techniques and direct examination. Before conducting the research, the condition of the manual handling workers or porters were observed then examined by a doctor at the clinic. Then, the documentation techniques were taken in the form of photos or pictures of activities or implementation related to the activities of examining the complaints of Low Back Pain in the clinic and their work environment.

## RESULTS AND DISCUSSION

Respondents in this study were 57 people. Most of the respondents had Picnic Habitus types, 20 respondents (91%) with a high-risk work attitude, 19 respondents (68%).

The next step was by conducting a univariate analysis of the variables used in the study, the results of the univariate analysis can be seen in the following table 1.

**Table 1.** Univariate Analysis

No	Variable	Frequency	Percentage (%)
1	<i>Habitus</i>		
	a. Picnic	22	38.5
	b. Leptosom	13	22.8
	c. Athletics	22	38.5
2	Work attitude		
		28	49.1
	a.High risk wth score 8-10	22	38.5
	b.Moderate risk with score 4-7	7	12.2
	c.Low risk with score 2-3		

Based on table, 1 it can be seen that of the 57 respondents of Manual handling workers or porters in Benjaran Market of Tegal City, most of the manual handling workers or porters have picnic habitus who experience the pain complaints were 20 respondents (91%), and those who experience low risk of low back pain

complaints in athletic habitus are 4 respondents (18%). There are 19 respondents with high risk work attitudes with the complaints of Low Back Pain (68%), while 1 respondent (14%) has low-risk work attitudes with low back pain complaints.

**Table 2.** Bivariate Analysis

Variable	Low Back Pain Complaint				Total	P Value
	Pain (LBP)		No Pain (LBP)			
	F	%	F	%		
Habitus						
Picnic	20	91	2	9	22	0.000
Leptosom	5	38	8	62	13	
Athletics	4	18	18	82	22	
Total						
Work Attitude						
High risk	19	68	9	32	28	0.002
Moderate risk	9	41	13	59	22	
Low risk	1	14	6	86	7	
Total						

Table 2 above shows that of the 57 respondents of manual handling workers or porters in the Benjaran market of Tegal City, most of the pelvic workers have picnic habitus who experience complaints of Low Back Pain, 20 respondents, 91%, and those who experience low back pain complaints in Athletic Habitus are 4 respondents 18%. Based on the chi-square

statistical test, it was obtained the p value is 0.000  $< \alpha$  (0.05), it can be concluded that there is an influence of Habitus with complaints of Low Back Pain on manual handling workers in the Benjaran market, Tegal City.

The results of this study are in line with the research conducted by Perdani, (2010) which showed that excess body weight, especially extra

weight in the abdominal area, can cause pressure in the abdominal area to increase. Picnic posture causes weakness of the abdominal muscles causing continuous hyperextension of the spine and irritating the pain-sensitive building eventually resulting in pain.

Work posture analysis has an important role in identifying the risk of diseases that arise due to work activities because it will be possible to find out the possible things that cause workers discomfort in doing their work due to inappropriate and risky body positions which will become a reference for evaluators in improving work posture and work facilities in order not to feel tired and sick quickl, (Iwan , 2014).

This result is consistent with the research conducted by Purnamasari, (2010) which shows that overweight person is 5 times more likely to suffer from Low Back Pain than the person who has ideal body weight. In this case, when the weight increases, the spine will be pressured to accept this burdensome load, resulting in damage and danger to the spinal structures, especially the lumbar part.

Based on table 2, it can be seen that of the 57 respondents of manual handling workers in Benjaran market Tegal, most of them have a high risk category of work attitude. Those who experience severe complaints of Low Back Pain or at high risk are 28 respondents (49.1%), and those who experience Low Back Pain complaint at low risk work attitude are 7 respondents 12.2%. Based on the chi-square statistical test, it was obtained that the p value is  $0.002 < \alpha (0.05)$ , it can be concluded that there is an effect of work attitude with complaints of Low Back Pain on manual handling workers in Benjaran market, Tegal..

From the research conducted in the field of study, the high-risk work attitude carried out by workers occur since in doing their work the workers do it manually, so that many workers are forced to move away from the natural body positions. At work, it is necessary to pay attention to the body posture in a balanced state so that it

can work comfortably and lastly (Marulalia, 2010).

Iwan, (2014) states that a high-risk work attitude has a high risk of experiencing Low Back Pain. For example, if the work position is in a long static condition, especially the lumbar area, then the position and movement that occurs during the work process can cause Low Back Pain pain due to repetitive movements. In addition, the muscles work excessively to maintain a working position, so that the muscles can experience spasm. Muscle complaints generally occur due to excessive muscle contraction as a result of giving too much work with a long duration of loading. If the muscle contracts excessively, the blood circulation to the muscle will decrease. As a result, the oxygen supply to the muscles will decrease, the metabolic process is inhibited and eventually the accumulation of lactic acid will occur which will cause muscle pain.

Knowledge about back pain is not always the same as the attitude towards pain. Knowledge alone is not sufficient to become readiness to carry out activities, as is attitude. Knowledge of low back pain can only become an attitude when this knowledge is accompanied by a readiness to act according to his feelings. Likewise, knowing about the complications of low back pain was not always the same as his attitude towards avoiding low back pain. For example, for the general public, their behavior to sit or do activities in a way that can cause lower back pain, due to their behavior that has been a habit for years tends to negate the negative consequences of their behavior (Ringo, 2015).

From several studies conducted by work physiology experts, it was found that unnatural work posture (long static attitude, repetitive twisting and bending movements) can result in disruption of the skeletal muscle system (Ringo, 2015).

This is in accordance with the theory of a person's work capacity to do work until a certain time limit, in line with the increasing age he has passed. As you age, the fibrosis process will occur and the classification of the spine is sequential

and close to each other, making it easier for you to experience pain in the spinal area (Wahyuni, 2014).

Considering thus, it is recommended that workers stand, sit, and squat in accordance with ergonomic principles (Sritomo Wignjosoebroto, 2003). Work attitude has a relationship with complaints of low back pain. This is in accordance with the literature review which states that wrong, awkward, and unusual work

attitudes will increase the risk of injury to the musculoskeletal system (Ruhmaniyah, 2007). This statement is also supported by the results of research conducted by (Diana, 2005) regarding the work attitude of bending and twisting during work as a risk factor for low back pain, indicating that a bent work attitude increases the risk of low back pain by 2.68 times compared to workers with an upright body work posture.

**Table 3.** Multivariate Analysis

Variable	Exp(B)
Habitus	1.716
Work Attitude	0.060
Low Back Pain Complaint	0.674

Based on table 3, the independent variable that most affected the Habitus variable in the manual handling workers in Benjaran market, Tegal was the Low Back Pain complaint data with an OR (Exp B) value of 1.716, meaning that respondents with Picnic Habitus had excess body weight, especially extra burden in the abdominal area can cause the pressure in the area to increase. Picnic posture causes weakness of the abdominal muscles causing continuous hyperextension of the spine and irritates the pain-sensitive building eventually resulting in pain, (Perdani, 2010).

The manual handling workers must carry out periodic checks during low back pain complaints for either for low rate or high rate complaint for early detection or prevention and treatment of emergencies in the health of the manual handling workers.

## CONCLUSION

Based on the results of study and discussion, it can be concluded that there is an effect between Habitus and Work Attitudes on the complaints of Low Back Pain in Manual Handling Workers or Porters in Benjaran Market, Tegal. Muscle activity before doing the physical activity or work lifting, holding and

moving weights due to the stretching muscles is very good for spinal muscle flexibility. Exercise is recommended to prevent lower back pain.

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