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Content Issue No. 2

| | Subject | The Author | Page No. |
|---|---|---|-------------|
| 1 | Effect Of Milking Frequency on The Solids And Mineral Elements of Farm Barn Maghreb I Camels (Camels dromedaries) MILK | Obaid A. Alwan and Amin O. Igwegbe2 | 9 |
| 2 | Impact of Human Resource Management PRACTICES on Firm Performance in Malaysian Small And Medium Scale Enterprises | Akram H Moh Moamer Mousa Rahil Elhwaij | 25 |
| 3 | Globalization and Women's Economic Status in the Arab World | Dr. Fareha Awad Ibrahi | 51 |

Effect Of Milking Frequency on The Solids And Mineral Elements of Farm Barn Maghreb I Camels (Camels *dromedaries*) MILK

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Abstract

Milks which are from various animal species, such as camel; which are nutritious food items containing numerous essential nutrients including vitamins, minerals and bioactive compounds capable of promoting positive health effects in humans. Camels can produce amounts of milk in drought areas where other domestic animals have very low productivity. A major importance for the young camel, and it especially for man, who drinks the milk . the yield of it makes composition the milk. Many factors have been reported to possibly affect both the quantity and quality (or composition) of camel milk, however, the changes mineral composition of the camel milk can be affected by milking frequency or milking practice have rarely been studied especially for potassium, sodium, calcium, iron, magnesium and phosphorus (usually expressed as total ash). Therefore this present study was designed to find ou the possible effect of the milking frequency on mineral composition of fresh Libyan Maghrebi camel (Camelus dromedarius) milk. During this study, five (5) healthy lactating Libyan Maghrebi dromedaries were randomly selected from a large herd, namely Ben-Suleiman Farm in Harsha, Al-Zawia, Libya. The camels were hand milked, twice a day for a period of the first six (6) months of the lactation. The minerals were extracted by the procedures outlined in AOAC (2006) and quantified using atomic absorption spectrophotometer (AAS). The milking frequency was observed to significantly affect ($p \le 0.05$) the potassium, magnesium and sodium contents of the fresh milk, whereas no significant difference ($p \ge 0.05$) was recorded on the calcium and the total ash contents of the fresh camel milk.

Key words: Milking frequency, minerals, camel milk, nutrients **Introduction**

The daily milk yield of camels was reported to be about 5-10 L under optimum feeding condition compared to only 3-4L under poor feeding conditions (Knoess,1976). Studies on the yield and composition of camel milk varied in many countries (Khaskheli et al., 2005). Milk yield have been reported to depend on a number of factors including milking frequency, the amount and quality of feed intake, the climate and the frequency of watering (Wilson, 1984). Khaled *et al.* (1999) observed that changes in diet composition and grazing conditions resulted in a rapid change in camel milk composition.

Increasely The consumption of camel milk is in the increase in many countries around the globe, where the milk is consumed mainly for its medicinal and nutritional properties (Kenzhebulat *et al.*, 2000; Mal *et al.*, 2006; Lorenzen *et al.*, 2011; Igwegbe *et al.*, 2014). Also, the composition of camel's milk had been studied under different conditions (Sawaya *et al.*, 1984; Abu-Lehia, 1987; El-Amin and Wilcox, 1992; Mehaia *et al.*, 1995; Obaid and Igwegbe, 2014). The mean values of camel milk composition (%) reported over the past 30 years were: 3.05 ± 0.1 , 3.1 ± 0.5 , 4.4 ± 0.7 , 0.79 ± 0.07 and 11.9 ± 1.5 for fat, protein, lactose, ash and total solids, respectively (Al-Haj and Al-Kanhal, 2010). The mineral content of camel milk expressed as % ash ranges from 0.6% to 0.9%, and has been reported to affect the rate of coagulation in camel milk as well as other functional properties of the milk.

Data available in literature indicate that camel milk is rich in chloride and phosphorus, and low in calcium (Farah and Fischer, 2004; Konuspayeva *et al.*, 2009). Camel's milk mineral salts have been reported to consist mainly of chloride, phosphates and citrates of sodium, calcium and magnesium (*Obaid et al.*, 2014). Also, Akbar Nikkhah (2011), reported 1kg of camel milk may provide 100% of daily human requirements for calcium and phosphorus, 57.6% for potassium, 40% for iron, copper, zinc and magnesium, and 24% for sodium. In an earlier study by Mehaia *et al.* (1995), on milk of three ecotypes of Saudi camels namely Wadah, Majaheim, and Hamra, they recorded 120, 109 and 119; 13.0, 12.4, and 11.6; 88.6, 83.5 and 90.1; 65.0, 73.4 and 64.6, and 135, 172 and 124mg/l00g of Ca, Mg, P, Na and K in the milk from the three camels, respectively. Average values

of Na, K, Ca, P and Mg in milk of early lactating camels have been 29.70±0.53 $mEqL^{-1}$, 50.74 ± 0.51 to be mEq L^{-1} . observed 94.06±0.75%, 41.68±0.55% and 11.82±0.22%, respectively. Whereas the values recorded towards the end of the lactation period were: 35.49±0.89mEqL⁻¹, 71.86±1.43mEqL⁻¹, 97.32±0.51%, 47.14±0.52% and 13.58±0.31%, respectively (Mal et al., 2007). Different breeds of camel have different capacities to deposit minerals in their milk (Wangoh et al., 1998). The mean values for zinc, manganese, magnesium, iron, sodium, potassium and calcium in mineral contents of dromedary camel milk $(100g^{-1})$ have been given as 0.53, 0.05, 10.5, 0.29, 59, 156 and 114 mg respectively (Sawaya et al., 1984; Elamin and Wilcox, 1992).

There is paucity of information on the various factors which affecting the mineral composition of Libyan Dromedaries. Therefore, the purpose of this study was to investigate the effects of milk frequency on the mineral elements of farm barn camel milk from some elected farms in Libya

Materials and Methods

Selection of the Animals and Rearing Condition

This study was carried out between October and May 2010. Five (5) healthy Libyan Maghrebi female . Their first lactation period were selected randomly, from a herd of 50 camels in the desert area of El-Zawia, and kept in barn inside Ben-Suleiman Farm, Harsha, south of El-Zawia City, Libya. The camels were randomly coded as 95, 106, 87, 86, and 99. They were equally fed exclusively with concentrated feeds consisting of grains, seeds and hays of alfalfa and oats. Water was also supplied to the animals on regular basis. They were milked twice a day, but milk samples for the analysis were taken, every other week from each of the lactating camels during the early morning and late afternoon milking, for a period of six (6) months. At every sample time, 150ml of the pooled milk was collected in sterile screw-capped plastic bottles and stored in iced boxes until transported to the analyses were carried out in triplicates.

Chemical Analysis

The milk samples were analyzed for total solid contents. For this purpose, the fresh milk from individual camel was thoroughly homogenized, and 5g was transferred to a pre-weighed flat bottomed dish, evaporated on a steam bath, transferred to a hot air oven at $105\pm 3C^{\circ}$, and then dried to a constant weight (AOAC, 2006, Nielsen, 2010). The total solids content was calculated using the following equation:

$Total \ solids \ (\%) = \frac{Weight \ of \ dried \ sample}{Weight \ of \ milk \ sample} \times 100$

The fat content was determined by Gerber method (James, 1995; AOAC, 2006; Nelson, 2010). Milk sample (11ml) was mixed with 10ml of laboratory grade sulfuric acid in a butyrometer fitted with rubber cork. The mixture was mixed thoroughly and the placed in a water bath at 65°C for at least five minutes, after which the sample was centrifuged in Gerber centrifuge pump for 3 to 5 minutes at 1000 rpm . The fat %age was read from the butyrometer scale. Solids not fat (SNF) content was determined by difference as reported by Harding (1995), and using the following formula: **SNF content** (%) = **TS** (%) – **Fat** (%)

The ash content of milk was determined by incinerating a previously dried sample in a muffle furnace at 550°C for 8 - 10 hours, until a completely gray matter was obtained (AOAC, 2006; Nelson, 2010). The % ash was calculated using the following equation:

$$Ash(\%) = \frac{Wt.of ash}{Wt.of sample} \times 100$$

For the determination of the individual mineral elements, the ash was dissolved in 5ml of concentrated HCl (sp. gr. 1.73g/200C, 35.0 -37.5%, May and Baker Ltd., Bagenmam, England), quantitatively transferred to 50ml volumetric flasks, and then made up to the marks with triple distilled water (Igwegbe et al., 2013). For the quantification of calcium and magnesium, 1% lanthanum was added to the solution to overcome phosphate interference. All the minerals except phosphorus were quantified with atomic absorption an spectrophotometer (AAS) (Pye Unicam SP9 AAS). the phosphorus was determined using Vanadomolybdate method.

Statistical Analysis

Statistical analysis of the data obtained, was carried out by the calculation of the means and standard deviations. The test for significance between means was determined through T-tests at 5% levels of significance (Montgomery, 1976).

Results and Discussion

Dairy camels in Libya have been categorized into: Maghrebi, Sirtawi and Fakhreva camels (Chapman, 1991; Wardeh, 2004). The Maghrebi camels are very common in northern part of Libya, with few spread in the central part of the country. They are larger in size and are considered to be the best local species available for meat and milk production. The larger proportion camel milk produced in Libva is traditionally consumed fresh or soured (Gnan et al., 1991). Recently, however, the consumption of camel milk is gaining more popularity, and several commercial farms are being established to supply fresh pasteurized camel milk to teaming consumers (Obaid and Igwegbe, 2014). Although the composition of camel milk has been studied in various parts of the world (Ohri et al, 1961; El-Bahay, 1962: Rao et al., 1970; Knoess, 1977; Yagil and Etzion, 1980; Sohail, 1983; Khanna, 1986; Yagil, 1987) including Libya (Gnan et al., 1986 and 1991; Obaid and Igwegbe, 2014); there is still limited information on the effect of some factors such as rearing conditions, ecotype dairy camels, genetic variation between individuals, breed, feeding and management conditions, type of work, milking frequency, age of animal, parity, and stage of lactation, on the chemical composition, particularly the mineral contents of individual camel milk. The results obtained in the present study are indicated in Tables 1 and 2 together with their standard deviations. The results have demonstrated the existence of significant effects ($p \le 0.05$) of the milking frequency on the % total solid (TS%) and solid not fat (SNF%) from the individual lactating camels (Table 1). The TS%, SNF% and the fat contents varied significantly between the morning and afternoon milking periods throughout the 5 weeks, while no significant difference $(p \ge 0.05)$ was recorded on the ash contents between the two milking periods (Table1). The highest mean value of TS% recorded was 11.54±0.59 % from lactating camel

Table 1: Mean values of total solids, solid not fat, fat, and ash contents of the camel milk samples

| | Lactation | Mean vo | alues(%) | | | | | |
|------------|----------------|---------------------------------|--------------------|--------------------|--------------------|--------------------|------------------|--------------------|
| mels de | Component | 1 st 2 st | nd 3 rd | 4 th | 5 th | | Range | Mean |
| Co Co | % | | | | | | | |
| | Total solids | 12.39° | 11.60 ^c | 10.90 ^c | 11.88 | 12.80 ^c | 10.90 - 12.80 | 11.91 ^a |
| 95 | Solids not fat | 9.43° | 9.10 | 8.79° | 9.04 | 9.23 | 8.79 - 9.43 | 9.12 ^b |
| | Fat content | 2.96 ^c | 2.00 ^c | 2.11 | 2.84 | 3.57° | 2.00 - 3.57 | 2.80 |
| | Ash content | 0.78 | 0.67 | 0.68 | 0.74 | 0.78 | 0.67 - 0.78 | 0.73 |
| | Total solids | 10.90° | 10.70 | 10.50 | 11.80 ^c | 10.00 ^c | 10.00 - 11.80 | 10.53 ^a |
| 106 | Solids not fat | 8.29 | 8.56° | 8.27 | 8.68 ^c | 7.29° | 7.29 - 8.68 | 8.24 ^b |
| | Fat content | 2.61 | 2.05° | 2.23 | 3.12 ^c | 2.71° | 2.05 - 3.12 | 2.42 |
| | Ash content | 0.78 | 0.73 | 0.69 | 0.73 | 0.72 | 0.69 - 0.78 | 0.73 |
| | Total solids | 10.60 ^c | 11.45 | 10.40 | 10.70 ^c | 10.00 ^c | 10.00 - 11.45 | 10.53 |
| 87 | Solids not fat | 8.48 ^c | 8.82 ^c | 7.90 | 7.90 | 7.75° | 7.75 - 8.82 | 8.21 |
| | Fat content | 2.12 | 2.63° | 2.50 | 2.30 | 2.04° | 2.04 - 2.63 - | 2.32 |
| | Ash content | 0.75 | 0.77 | 0.73 | 0.82 | 0.73 | 0.73 - 0.82 - | 0.76 |
| | Total solids | 11.39° | 11.54° | 10.60° | 11.10 ^c | 10.67 | 10.60 - 11.54 | 11.06 ^a |
| 86 | Solids not fat | 8.97° | 8.46 | 8.40 | 8.60 | 8.16 ^c | 8.16 - 8.97 | 8.52 ^b |
| | Fat content | 2.42 | 3.08° | 2.20 ^c | 2.50 | 2.51 | 2.20 - 3.08 - | 2.54 |
| | Ash content | 0.80 | 0.77 | 0.78 | 0.76 | 0.79 | 0.76 - 0.80 | 0.79 |
| | Total solids | 10.90° | 10.70 | 10.35 | 10.08° | 10.86 | 10.08 - 10.90 | 10.58 ^a |
| 99 | Solids not fat | 8.75° | 8.29 | 8.05° | 7.90 ^c | 8.25 | 7.90 - 8.75 | 8.25 |
| | Fat content | 2.25 | 2.41 | 2.30 | 2.16 ^c | 2.60° | 2.16 - 2.60 | 2.32 |
| | Ash content | 0.79 | 0.79 | 0.78 | 0.78 | 0.72 | 0.72 - 0.78 | 0.77 |

collected during the morning milking period (%)

Means with same letter(c) within the rows , and the means with same letter(a, b, &d) between rows are significantly difference at ($P \le 0.05$).

code 86 during the afternoon milking while the mean value for the morning milking was 10.91±1.00%; and the SNF% were 8.71±0.88 and 8.52 ± 0.37 %, respectively, during the two periods. Also. significant differences ($P \le 0.05$) were observed between the mean value of TS% and SNF% of the individual camel milk, the mean value of milk samples collected from camel No. 95 during five weeks period were 11.91±0.73% in the morning milking and 12.50±0.27% in that of afternoon milking; whereas the mean values recorded for camel No. 106 were 10.53±0.27%, and11.53±0.48% during the morning and afternoon periods, respectively. This result is in line with those recorded in various similar studies including those of Mehia. et al (1995), Memon (2000), Gassem (2000), Chaudhry (2002), Singh, et al (2006) and Obaid et al.(2014) but in disagreement with results obtained by Gorakh (2010) (Tables 1 & 2). On the other hand, no significant difference $(p \ge 0.05)$ in the mean fat contents between milk samples collected during the morning and afternoon milking periods throughout the five weeks period. The highest mean fat % obtained in the morning milking was $2.48\pm0.20\%$, while that of the afternoon was 2.77±0.32%. this variation may be due to differences in age and delivery time, in addition to some other genetic factors. The average fat % recorded in milk from camel Nos. 95, 106 and 87 were: 3.15 ± 0.18 , 2.66 ± 0.32 , and $2.60\pm0.37\%$, respectively, in the afternoon milk samples, while that of the morning samples were: 2.80±0.54, 2.42 ± 0.32 and $2.32\pm0.25\%$, respectively. The fact that the fat content of camel milk varied with the milking frequency has also been confirmed by other workers including Rodriguez et al.(1985), and the stage of lactation by El-Amin (1979) and Zia-ur-Rehman (1998). Moreover, contrary to these factors, Knoses, et al (1986), observed that average fat % age did not depend on the stage of lactation but more likely on the climatic conditions, particularly the prevailing Furthermore, no significant temperature of the environment. differences ($p \ge 0.05$) were observed in % ash contents within and between mean values of milk samples collected from individual camels during the morning and afternoon milking periods (Tables 1 and **2**).

| | Lactations | s Mean values % | | | | | | |
|----------------|----------------|--------------------|--------------------|--------------------|--------------------------------|-------------------|------------------|--------------------|
| Camels Code | component % | 1 | st 2 nd | 3 rd | 4 th 5 ^t | h | Range | Mean |
| | Total solids | 12.87 | 12.60 | 12.54 | 12.30 | 12.19 | 12.19 - | 12.50 ^a |
| 95 | Solids not fat | 9.34 | 9.37 | 9.36 | 9.19 | 9.03 | 9.03 - 9.36 | 9.26b |
| | Fat content | 3.53 | 3.23 | 3.18 | 3.11 | 3.16 | 3.11 - | 3.15 ^d |
| | Ash content | 0.81 | 0.78 | 0.79 | 0.79 | 0.78 | 0.78 - 0.0.81 | 0.79 |
| | Total solids | 12.00 ^c | 11.33 | 10.86 ^c | 11.99° | 11.48 | 10.99 - 12.00 | 11.53ª |
| 106 | Solids not fat | 8.89 | 8.92 | 8.28 | 9.56 | 8.60 | 8.28 - 9.56 | 8.69 ^b |
| | Fat content | 3.11° | 2.41 | 2.08 ^c | 2.43 | 2.80 ^c | 2.08 - 3.11 | 2.66d |
| | Ash content | 0.76 | 0.77 | 0.77 | 0.79 | 0.78 | 0.76 - 0.79 | 0.77 |
| | Total solids | 10.77° | 10.87 | 10.64 ^c | 11.33° | 10.90 | 10.64 - 11.33 | 10.90 ^a |
| 87 | Solids not fat | 8.45° | 8.41 | 8.27 | 8.29 | 7.90 ^c | 7.90 - 8.45 | 8.26 ^b |
| | Fat content | 2.32 ^c | 2.29° | 2.37 | 3.01° | 300° | 2.29 - 3.01 | 2.60 |
| | Ash content | 0.80 | 0.79 | 0.79 | 0.80 | 0.78 | 0.78 - 0.80 | 0.79 |
| | Total solids | 12.17 ^c | 11.79 | 10.89° | 11.56 | 10.94° | 10.89 - 12.17 | 11.47ª |
| 86 | Solids not fat | 9.11° | 9.29 | 8.53° | 8.83 ^c | 8.44 ^c | 8.44 - 9.29 | 8.84 ^b |
| | Fat content | 3.06° | 2.80° | 2.36 | 2.73 | 2.50 ^c | 2.36 - 3.06 | 2.63 |
| | Ash content | 0.76 | 0.78 | 0.77 | 0.76 | 0.78 | 0.76 - 0.78 | 0.77 |
| | Total solids | 11.90 | 11.37 | 11.42 | 11.32 | 11.51 | 11.32 - 11.90 | 11.32ª |
| 99 | Solids not fat | 9.02° | 8.13° | 8.62 | 8.38 | 8.30 ^c | 8.13 - 9.02 | 8.49 ^b |
| | Fat content | 2.88 ^c | 3.14 ^c | 2.80 ^c | 2.74 | 3.00 ^c | 2.74 - 3.14 | 2.83 ^d |
| | Ash content | 0.76 | 0.78 | 0.77 | 0.77 | 0.76 | 0.76 - 0.78 | 0.77 |

 Table 2: Mean values of total solids, solid not fat, fat, and ash contents of the camel milk

 samples collected during the afternoon milking period (%)

Means with same letter(c) within the rows , and the means with same letter(a, b , &d) between rows are significantly difference at ($P \le 0.05$).

The mineral contents recorded in the camel milk samples for both the morning and afternoon milking periods during the five weeks of the experiment are presented in Tables 3 and 4, with their standard deviations. The results also of demonstrate that the milking frequency significantly affected (p<0:05) the mineral concentrations in the milk from the individual lactating camels. The mean value of potassium recorded in the morning milk samples was 135.71±1.26 mg/100ml, while that of the afternoon was 143.24±6.18 mg/100ml .The concentration of potassium was more in the afternoon milk samples, the mean value recorded for camel No. 87 was 147.82±5.77mg/100ml, ranging from 140.80 to 152.60mg/100ml, whereas the lost potassium concentration was observed in milk from camel No. 95 with a mean of 137.37±3.36mg/100ml, with a range of 124.20 to 136.22mg/100, and the lowest concentration of potassium, 133.97 was recorded in milk from camel No. 106 and the range was from 128.06 to 139.60mg/100ml (Table 3). Similarly, the concentration of sodium increased during the second month of the lactation period afternoon milk samples than that of the morning. The camel No. 95 recorded least concentration of sodium when compared with those of camel Nos. 106, 87, 86 and 99, which recorded sodium contents of 36.24, 39.10, 40.00, 39.69, and 39.04, respectively in the morning milk samples, while that of the afternoon were 39.87, 47.23, 49.91, 47.30, and 49.25mg/100ml, respectively

| | | | n | Tor ming min | king perio | us (mg/10 | | |
|-------|--|-------|-------|--------------------|------------|--------------------|---------|--------------------|
| | Lacta | | Mea | n values(mg | /100ml) | | | |
| code | Mont 1^{st} 2^{nd} 3^{rd} 4^{th} 5^{th} | | | | | | Range | Mean |
| Camel | h Mine ral | | | | | | | |
| | Ca | 80.51 | 81.42 | 84.31 | 83.24 | 85.78° | 80.51 - | 83.05 ^a |
| | | C | | | | | 85.78 | |
| 95 | Na | 31.36 | 35.06 | 38.11 | 37.41° | 39.75° | 31.36 - | 36.34 ^b |
| | | с | | | | | 39.75 | |
| | Р | 76.30 | 72.00 | 82.12 ^c | 89.41 | 67.17 ^c | 67.17 - | 81.40 ^d |

| Table 3: The Mineral Contents of the Camel milk samples collected during the |
|--|
| Morning milking periods (mg/100ml . |

| | | | с | | | | 90.41 | |
|-----|-----|------------|---------------|--------------------|---------------------|--------------------|------------------|---------------------|
| | | | | | | | 89.41 | |
| | Mg | 9.13° | 10.00 | 9.36 | 11.23 ^c | 10.11 | 9.13 - | 9.97 |
| | | | с | | | | 11.23 | |
| | K | 133.1 | 136.5 | 129.01° | 139.16 ^c | 138.30 | 129.01- | 135.22 ^f |
| | | 1 | 0 | | | | 38.30 | |
| | Са | 86.07 | 80.32 | 86.14° | 85.51 | 86.00 | 80.32 - | 83.81 |
| | | | с | | | | 86.07 | |
| 101 | Na | 35.62 | 37.14 | 40.22° | /1.21 | 41.23 | 35.62 | 30 10 ^b |
| 106 | Iva | 55.02 c | 57.14 | 40.22 | 41.51 | 41.23 | 33.02 - 41 21 | 39.10 |
| | D | 00.17 | 70.44 | 02.20 | 00.150 | 07.46 | 41. 51 | 02 70d |
| | P | 82.17 | /8.44 | 82.30 | 88.15 | 87.46 | 82.17 - | 83.70 ^ª |
| | | | с | | | | 88.15 | |
| | Mg | 8.77° | 9.12 | 11.06 ^c | 10.47 | 9.10 | 8.77 - | 9.70 |
| | | | | | | | 10.47 | |
| | K | 132.3 | 128.0 | 140.13 | 139.60 | 129.75 | 128.06- | 133.97 ^f |
| | | 1 | 6 | | | | 139.60 | |
| | Са | 84.22 | 85,15 | 84.53 | 87.81 | 85.46 | 84.22 - | 85.43 ^a |
| | eu | 0 | 00110 | 0.1100 | 07101 | 00110 | 87.81 | 00110 |
| | Na | 27.41 | 20.20 | 20.76 | 42.120 | 41.42 | 27.41 | 40.00b |
| 87 | Iva | 57.41 | 39.30 | 39.70 | 42.12 | 41.42 | 37.41 - | 40.00 |
| | | | 60.0 7 | 50.100 | 00.45 | 00.650 | 42.12 | E c 4 d |
| | P | 74.53 | 69.85 | 73.19 | 80.47 | 82.65° | 73.19 - | 76.14 ^ª |
| | | | с | | | | 82.65 | |
| | Mg | 10.11 | 9.34 | 9.21 | 10.75 | 11.28 | 9.21 - | 10.14 |
| | | | | | | | 11.28 | |
| | K | 128.2 | 135.3 | 134.21 | 140.40 ^c | 139.36 | 128.26- | 135.51 |
| | | 6° | 3 | | | | 140.40 | |
| | Ca | 77.88 | 80.36 | 85.49 | 88.25° | 86.37 | 77.88 - | 83.67 |
| | eu | c | c | 00112 | 00.20 | 00107 | 88 25 | 00107 |
| 0.6 | Na | 38 31 | 30.20 | 40.82 | 40.16 | 30.87 | 38.31 | 30.60 |
| 86 | Iva | 50.51 | 39.29 | 40.82 | 40.10 | 39.07 | 40.82 | 59.09 |
| | | 79.26 | 72.44 | 00.26 | 96.196 | 96.01 | 40.82 | 01.05d |
| | P | /8.30 | /3.44 | 80.30 | 80.18 | 80.91 | / 5.44 - | 81.05 |
| | | | | | | 10.70 | 86.91 | 0.70 |
| | Mg | 9.06 | 8.36 | 9.54 | 10.17 | 10.52 | 9.06 - | 9.58 |
| | | | | | | | 10.52 | |
| | K | 133.5 | 134.7 | 132.08 | 142.60 ^c | 133.29 | 133.50- | 135.24 |
| | | 0° | 1 | | | | 142.60 | |
| | Ca | 81.46 | 84.80 | 84.32 | 83.45 ^c | 86.73 ^c | 81.46 - | 82.15 |
| | | с | | | | | 86.73 | |
| 00 | Na | 34.51 | 38.12 | 40.17 | 40.65 | 41.75 ^c | 34.51 - | 39.04 |
| 77 | | c | c | | | | 41 75 | |
| | р | 77.36 | 78 18 | 80 50° | 82 10° | 78.02 | 77.36 | 79 / 7d |
| | 1 | c | /0.10 | 80.50 | 02.40 | 10.92 | 82.40 | 19.41 |
| | 14 | 10.29 | 0.46 | 11 11 | 11.44 | 10.25 | 0.40 | 10.51 |
| | Mg | 10.28 | 9.46 | 11.11 | 11.44 | 10.25 | 9.46 - | 10.51 |
| | - | | | | | | 11.44 | |
| | K | 126.4 | 129.1 | 136.60 | 140.31 ^c | 141.66 | 126.42- | 134.82 |
| | | 2° | 2 | | | | 141.66 | |

| | Lacta tions | Mean values(mg/100ml) | | | | Dongo | Moo | +S D | |
|-----|----------------|---|--------------------|-------------------------|-------------------------|-------------------------|--------------------|------------------------|--------------|
| ame | h | 1 st | 2 nd | 3 th | 4 th | - 5 th | Känge | n | ±5.D |
| 0 | Mine ral | | | - | | | | | |
| | Ca | 79.61 د | 84.53° | 81.51 | 80.1 0 | 83.7 5° | 79.61 - 84.53 | 81.8 6 ^a | 2.19 |
| 95 | Na | 39.40 | 40.00 | 39.68 | 41.3 2 | 38.9 5 | 39.40 - 41.32 | 39.8 7 ^b | 0.91 |
| | Р | 83.12 | 79.08° | 86.75 c | 90.0 0 ^c | 90.8 2 | 79.08 - 90.82 | 85.9 5 ^f | 4.90 |
| | Mg | 9.02 | 10.53 | 9.12 | 10.6 1 | 10.3 4 | 9.02 - 10.61 | 9.92 ^d | 0.79 |
| | K | 132.4 1° | 136.22 | 128.8 4 | 135. 16 | 124. 20 ^c | 124.20 - 136.22 | 132. 37 | 3.36 |
| | Ca | 79.67 c | 82.41c | 80.13 | 88.2 6c | 86.1 7 | 79.67 - 88.26 | 83.3 5ª | 3.77 |
| 106 | Na | 38.45 c | 40.61° | 49.51 | 52.5 4 ^c | 54.8 1° | 38.45 - 54.81 | 47.2 3 ^b | 7.30 |
| | Р | 81.31 | 82.20 | 79.51 c | 87.3 3° | 86.7 5 | 79.51 - 87.33 | 83.4 2 | 3.45 |
| | Mg | 8.97 | 8.62° | 10.23 c | 10.0 0 | 8.78 | 8.62 - 10.23 | 9.32 | 0.74 |
| | K | 136.1 0 ^c | 141.16 | 139.7 2 | 156. 10 ^c | 153. 26° | 136.10 - 156.10 | 145. 53 | 8 .84 |
| | Ca | 79.67 c | 80.00 ^c | 84.31 | 85.5 0 ^c | 84.8 3 | 80.00 - 85.50 | 82.8 6 | 2.80 |
| 87 | Na | 39.96 ° | 41.13° | 51.66 c | 54.3 6 ^c | 52.8 4° | 39.96 - 54.36 | 47.9 1 ^b | 6.08 |
| | Р | 75.63 c | 70.41c | 72.75 | 80.3 2c | 81.0 9 | 72.75 - 81.09 | 76.0 4 ^f | 4.65 |
| | Mg | 9.46 ^c | 9.12 | 8.82 ^c | 8.50° | 8.91 | 8.82 - 9.46 | 8.96 d | 0.36 |
| | K | $ \begin{array}{c} 140.8 \\ 0^{c} \end{array} $ | 142.31 | 151.0 6 ^c | 152. 60 ^c | 152. 31 | 140.80 - 152.60 | 147. 82 | 5.77 |
| | Ca | 81.36 c | 83.08 | 85.76 ° | 86.5 | 87.4 4° | 81.36 - 87.44 | 84.9 5ª | 2.44 |
| | Na | 41.77 | 40.38 ^c | 49.71 | 52.2 | 52.3 | 40.38 - | 47.3 | 5.80 |

| 86 | | | | с | 3° | 9° | 52.39 | 0 | |
|----|----|-------|---------------------|-------------------|----------------|-----------------|----------|----------------|-------|
| | Р | 77.44 | 74.65 ^c | 82.12 | 84.3 | 84.8 | 74.65 - | 80.6 | 4.46 |
| | | с | | с | 2° | 3° | 84.83 | 7 ^f | |
| | Mg | 8.66 | 8.70 | 9.17 | 9.00 | 9.06 | 8.66 - | 8.90 | 0.23 |
| | | | | | | | 9.17 | | |
| | K | 137.8 | 141.12 ^c | 149.4 | 150. | 150. | 137.81 - | 145. | 2.83 |
| | | 1° | | 0° | 11° | 10 | 150.11 | 71 | |
| | Ca | 81.27 | 84.71 | 88.36 | 87.1 | 86.1 | 81.27 - | 85.5 | 2.73 |
| | | с | | с | 3° | 0 | 88.36 | 1 ^a | |
| 99 | Na | 44.36 | 43.56 ^c | 50.95 | 52.6 | 53.7 | 43.56 - | 49.2 | 4.96 |
| | | | | с | 4 ^c | 2° | 53.72 | 5 ^b | |
| | Р | 78.25 | 77.76 ^c | 79.63 | 80.2 | 80.3 | 77.76 - | 79.2 | 1.18 |
| | | | | с | 2 | 6 ^c | 80.36 | 4 | |
| | Mg | 9.31 | 9.22 | 8.74 ^c | 9.98 | 10.2 | 8.74 - | 9.49 | 0.60 |
| | | | | | | 1° | 10.21 | | |
| | K | 129.9 | 138.75 ^c | 150.1 | 153. | 151. | 129.90 - | 144. | 10.08 |
| | | 0° | | 1 | 31° | 66 ^c | 153.31 | 75 | |

Means with same letter(c) within the rows , and the means with same letter(a, b, &d) between rows are significantly difference at ($P \le 0.05$).

In general, highly significant differences ($p \le 0.05$) were recorded between the mean values of sodium and potassium from individual camel milk, their average concentrations in milk samples collected during the morning and afternoon milking periods from the lactating camel Nos. 95, 106, 87, 86 and 99 were: 41.35 ± 2.51 , 132.37 ± 3.36 and 47.23 ± 7.30 , 145.27 ± 8.84 and 47.91 ± 6.88 , 147.82 ± 5.77 and 47.30 ± 5.80 , 145.71 ± 2.83 and 49.24 ± 4.96 , 144.75 ± 10.08 mg/100ml, respectively (**Table 4**).

Also, the magnesium contents were significantly different ($p \le 0.05$) within and between the weekly records. There concentration of this mineral varied significantly between the morning and afternoon periods (**Tables 3** and **4**). No significant differences ($p \ge 0.05$) were observed in the concentration of calcium between the morning and afternoon milk samples the mean concentration of calcium in the two periods varied from 77.88 to 88.25 mg/100ml in the morning milk samples, and 79.61 to 81.36 mg/100ml in those of the afternoon (**Tables 3** and **4**). Similarly, the phosphorus values increased from one individual lactating camel to another as shown in **tables 3** and **4**. The mean concentration of this mineral range from 9.02 to 10.00 mg/100ml in afternoon milk samples. The mineral elements recorded in this study

were considered to be higher when compared with the values reported by Elamin and Wilcox (1992); but they were in agreement with values reported by Ayadi *et al.* (2009); Haddadin *et al.* (2007) and Obaid and Igwegbe (2014).

Finally, results of the analysis of the mineral contents of the pooled fresh camel milk are presented in **Table 5**. A significant difference ($p \le 0.05$) was observed within and between the mean values of phosphorus, potassium and sodium contents of the camel milk samples collected during the two milking periods throughout the five weeks period of the lactation. The mean concentration of the minerals recorded during the period were: 80.32 ± 4.60 , 135.60 ± 4.19 , 38.87 ± 2.25 , 81.04 ± 3.43 , 143.15 ± 5.66 and 47.38 ± 5.53 mg/100g phosphorus, potassium, and sodium, respectively. No significant differences ($p \le 0.05$) were observed in the mean concentrations of calcium and magnesium (**Table 5**).

| Table 5: The Mineral Contents of Pooled | Camel Milk Samples collected during the |
|---|---|
| Morning and Afterno | oon Milking Periods (mg/100ml) . |

| Lacta | tions | | Mean | values (mg | /100ml) | | | | |
|------------|--------------|---------------------|---------------------------------|---------------------|---------------------|---------------------|---------------|---------------------|------|
| mo | nth erals | | 1 st 2 nd | 3 rd | 4 th | 5 th | Range | Mean | ±S.D |
| | Ca | 82.39 | 83.80 | 84.51 | 83.75 | 84.50 | 82.39 - 84.51 | 83.79 | 0.86 |
| | Na | 35.44 | 37.76 | 39.83 | 40.33 | 40.98 | 35.44 - 40.98 | 38.87 ^a | 2.25 |
| | Р | 77.72 ^c | 74.37° | 79.70 | 85.20 ^c | 84.60 | 74.37 - 85.20 | 80.32 | 4.60 |
| s | Mg | 9.47 | 9.31 | 10.05 | 10.80 | 10.23 | 9.31 - 10.80 | 9.97 | 0.60 |
| eral | K | 130.70 ^c | 133.33 | 134.37 | 141.20 ^c | 138.45 | 130.70-141.20 | 135.60 ^b | 4.19 |
| Jin | Ca | 80.27 | 83.05 | 83.34 | 81.42 | 82.62 | 80.27 - 83.34 | 82.14 | 1.28 |
| | Na | 41.85 | 40.90 ^c | 52.35° | 51.30 | 50.50 ^c | 40.90 - 52.35 | 47.38 ^a | 5.53 |
| · · | P | 79.15 ^c | 76.80 ^c | 80.15 | 84.44 ^c | 84.65 ^c | 76.80 - 84.44 | 81.04 | 3.43 |
| | Mg | 8.95° | 9.20 | 9.20 | 9.62 ^c | 9.35 | 8.95 - 9.62 | 9.26 | 0.25 |
| | K | 135.40 ^c | 139.85 | 143.80 ^c | 149.45 ^c | 147.30 ^c | 135.40-149.45 | 143.15 ^b | 5.66 |

Means with same letter(c) within the rows , and the means with same letter(a & b) between rows are significantly difference at $(P \le 0.05)$.

Conclusion

Economically ,Milk composition is important to the milk producer and , processors . Nutritionally, it is important to consumers. Many factors can influence milk composition. Therefore this study has established that composition of the camel milk increases during the first two months of the lactation ,then gradually decreases up to the end of the lactation period. This is an important point to remember when evaluating the potential improvement a herd's milk composition and component yields. The actual amount and composition of milk produced during a lactation period was affected by several factors: breed, parity, season of parturition, geographic region and management factors including nutrition and frequency of milking.

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Impact of Human Resource Management Practices on Firm Performance in Malaysian Small And Medium Scale Enterprises

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Impact of Human Resource Management PRACTICES on Firm Performance in Malaysian Small And Medium Scale Enterprises

Abstract

Organisational performance of Small and Medium Scale Enterprises has become of great importance due to the contribution of SMEs in economic growth. The study examines how human resource management practices (HRM) impact on Malaysian SMEs performance. To achieve the objectives of the study, SPSS(regression analysis) was used. The sampled was randomly selected from SMEs in the Kuala Lumpur area -Malaysia. The result has been showed that HR practices affect SMEs operational performance positively with training and development, selective hiring and behaviour and attitude as the significant HR variables.

1. Introduction

Human Resource Management (HRM) evolved from a passive arm of an organization to perform a proactive function. Within an organization, human resource management is a function which focuses on management, recruitment and provision of direction for workers in an organization. According to Mello and Mello (2002), strategic human resource management could be seen as the process of developing a collection of aligned , consistent, programs and practices. In form of strategies and policies towards achieving the objectives of an organization. The growing literature on

human resource management has identified strategies such as selective hiring, extensive training, and pay for performance evaluation, employment security, behaviour and attitude, teamwork, compensation, human resource planning as well as communication of strategy as key variables that affect firm performance.

In both developed and developing economies, the government is turning to SMEs for innovations, inventions and employment. The secret for a successful self-reliant strategy relies partly on the attitude of people towards an enterprise and on adequate incentive which can make risk worthy businesses to become a necessity in a country. Small and Medium Industries Development Corporation (SMIDEC) defines SMEs as enterprises with annual sales turn over not exceeding RM25 million and/or with full-time employees not exceeding 150 (SMIDEC, 2007).

Statistics showed that SMEs account for about 92.2% of the total business establishment in Malaysia and also account for about 32% of the GDP and 59% of total employment in the country. Of the 519,000 SMEs in Malaysia, about 86.5% are in the services sector while the manufacturing and the agricultural sector account for about 7.3% and 6.2% respectively. In recognition of the substantial contribution of the Malaysian SMEs to the country's economy, strategies to promote its development has constantly featured in all of Malaysian Government's economic acceleration plans over the years, with a view to have better growth in this sector. Therefore, it is important to examine the organizational performance of these small businesses. It has also been reported that Malaysia is currently facing a huge shortage of qualified human resource personnel and managers as majority of Malaysian citizens trained abroad prefer working in diaspora than coming to work in Malaysia (World Bank, 2011). Most of the business organizations in the world and Malaysia in particular do not measure well in businesses due to the inability of the human resource management (HR) to play the important role of enhancing firms' performance. There are still some gaps in the research on HRM and organizational performance. Lack of effective management of human resource and business strategies could result into dissatisfaction of employees and customers which can in turn hinder the efficient performance in business organisations.

To boost her GDP, the strengthening of SMEs' human resource development area and management is needed in Malaysia; this will assist in raising and producing knowledge and skills in the workforce which will eventually lead to an increase in productivity. Therefore, the study will contribute to the literature on the importance of human resource management by studying SMEs. It will reveal to an extent how SMEs in Malaysia are performing and the level of human resource management practices. This study aims to find out if human resource management practices in Malaysian Small and Medium Scale Enterprises (SMEs) help to boost SMEs' operational performance.

2. Literature Review

The increasing competitiveness in global businesses has placed a high demand on organizations to find a way of achieving high performance thereby resulting to the growth in researches conducted on strategic management by academic and practitioners. According to Moingeon et al., (1998), resource could mean any input that enables the functions in an organization to be carried out. Resources may be viewed as all capabilities, assets, organization, firm attributes, processes, information and knowledge controlled by an organization that facilitates an increase in its efficiency and performance. There are basically two types of resources; these are intangible and tangible resources.

The physical assets are the tangible resources that an organization possesses while brands and patents, corporate images, and other intellectual property which exist in abstraction are the intangible resources. Resources could be classified as physical resources, capital resources and human resources. Physical resources are the physical technology used in a firm; examples of which are the firm's plant and equipment. On the other hand, human capital resources include the relationships, intelligence, training, judgement experience

and insight of individual workers and managers in a firm. The organisational capital resources include the firm's formal and informal planning, the interaction among groups within a firm and between a firm and those in its environment, its formal reporting structure, controlling, and coordinating systems.

Recently, growth in the area of human resource management has led to series of empirical research on the role of human resource management practices on firm performance. Though the field has witnessed considerable growth in empirical contributions, most of the contributions revolve around three theoretical considerations which are; the universalistic, contingency and configuration perspectives.

The proponents of the universalistic perspective believed that the linkage between organizational performance and strategic human resource management is a linear relationship. In general, individual HRM practices have been employed by the universalistic theorists and have examined the relationship between individual HRM practices and performance believing that the use of specific employment practices to a greater extent will constantly lead to better organizational performance (Delery and Doty, 1996).

The contingency approach to human resource management assumes that the interaction between the HRM practices and firm performance will vary depending on different internal and external influences; they therefore argue that HRM practices will only possess a positive effect on an organizational performance when they are consistent with the strategy of an organisation (Delery and Doty, 1996,).

The configuration approach or theorists on the other hand believe that the extent to which organizational performance is affected by HRM depends on the adoption of an effective combination of HRM bundles. They posit that the relationship between performance and HRM involves complex interactions between outcomes and HRM bundles. With the idea of successfully replicating a firm's formula because each HRM practice is optimized in the context of an organizational technology, business processes and culture in combination with others, bundling together the specifics HRM practices makes it difficult for a rival firm to hire away high performing staff (Lee et al., 2005).

However, a key point in the strategic HRM research is that it is the system of practices that is important not the individual practice. Therefore, bundling together the Human resource practices has a greater effect on performance than individual (universalistic) human resource practices (Chan et al., 2004).

HRM Practices

A number of human resources practices and their role as determinants of firm performance have been examined in the literature. Today's knowledge-based economy where firms are increasingly facing challenges on the availability of highly skilled and qualified labour, the adoption of effective human resource practices is becoming important. Human resource practices include: behaviour and attitude, selective hiring, performance appraisal, training and development, employment security, HR planning, teamwork and compensation.

Selective hiring is the process of using extensive procedure to assess the skills and abilities for job fit, relevant knowledge and organization fit such as interpersonal skills, selective screening, technical skills, attitude and/or personality (Ahmad and Schroeder, 2003). Some of the vital decisions made in organizations include Human resource staffing decisions. Employment interview is an essential focus of staffing decisions (Ferris et al., 1999). In identifying a right candidate with the ability to perform a function, a sophisticated selection system which is valid and rigorous is essential.

In a situation where there is a mismatch between the people employed and their jobs, there is possibility that the performance of the organization will be affected. A study by Singh (2003) has shown that a human resource selection process that is based on selective hiring leads to about 6% variation in firm performance. Therefore, a selection process that focuses only on structured interview might be misleading if to assess the elusive and poorly defined notion of fit is the usefulness and true goal of an interview. Where fitness to the job and technical qualifications are best measured by tests and

other objective procedures, dual assessment process should be the focus for recruiters.

Evaluation of employees' performance is achieved through performance appraisal. Employees' performance appraisal could aim at motivating employees for better contribution to organisational success. Researchers have different view of performance appraisal as some argue that it is beneficial to firm growth while others see it as demoralising and consequently leads to lower productivity. Lee et al. (2010) and Ahmad and Schroeder (2003) state that pay for performance evaluation could mean the performancecontingent pay for group-based employees and above market pay policies usually done to enhance employees' motivation. Thus, it is necessary to exercise care in performance appraisal.

Extensive training could be explained as the amount of formal training given to employees. Such training include technical and inter personal training, cross training, training for future and current skills, on the job training, off-job training, skill training, training for both newly hired and experienced employees (Lee et al., 2010; Ahmad and Schroeder, 2003). Therefore, firm investments in training both for non-technical and technical will produce a positive effect in the skills/knowledge development of its employees and the extent to which the firm will succeed.

Employment security refers to job security via work force stabilization in a careful way (Lee et al., 2010). Security in employment can be defined as the extent to which an organization provides stable job for its employees. The ability of a firm to provide job security to its employee indicates a long standing commitment to its workforce. Therefore, in a situation where employers can provide employment security for their employees, there is possibility that performance will improve (Yousef, 1998).

Compensation is particularly important in small firms due to its effect in significantly affecting the recruitment and retention of qualified human resource; if the small firms are unable to provide better payment for applicants, then they may not be able to recruit or retain knowledge or critical skills that will be needful for effective operation (Cardon and Stevens, 2004). Compensation can be in form of financial or nonfinancial. Compensation whether individual or group, aims at motivating the workforce for more contribution towards firm growth.

Information sharing might have a dual impact; firstly, the positive meaning of the trust of the company to its employees is conveyed. Secondly, employees should have access to critical information in making informed decisions. Communication of strategy refers to the communication of systematic and related decisions by the management to the employees with a view of achieving better performance (Ahmad and Schroeder, 2003). A group of employees formed with the aim to carry out a particular job and/or to solve problems is regarded as teamwork. It is logical to reason that teamwork will enhance performance of any organization which aims at profit maximization.

Human resource planning is measuring the ability of the firm to forecast the human resource requirement of the organization as well as the amount spent on staff. Human resource planning could be done through taking note of the number of people involved in selecting human resource and forecast of human resource requirements (Ahmad and Schroeder, 2003; Lee et al., 2010).

HRM practices may sometimes focus more on employee attitudes, such as organizational commitment especially when achieving organizational goal is more important than individual achievement. In such circumstance, an employee with strong organizational commitment will spend much of his effort to ensure that organizational targets are met. There is such possibility that the potential of highly skilled and knowledgeable employees who are uncommitted will be minimized in the organization. Attitude to work may affect individual productive capabilities and consequently affect firm performance.

Human Resource Management Practices in Small Firms

Study conducted by Kotey and Slade (2005,) characterise the recruitment process of small businesses as informal, a method which is defined by Ram et al. (2001) as a process of collective and/or individual workforce engagement,

which focuses mainly on the tacit understandings and unwritten customs and which occurs due to the interaction among the groups at work. It has further be shown that in some small firms, training is very limited to informal method, a situation where new recruits are observe other employees for a while and then carry out similar duties at similar skill levels and times as their more experienced colleagues. However, some small firms may employ higher educational establishments to train their workers.

In a survey of about 100 SMEs in United Kingdom (UK) conducted by Cassell et al. (2002), it is discovered that a high %age of the SMEs use the following HR practices; recruitment/selection procedure, equal opportunities policies, appraisal system, investment in people, incentive scheme and empowerment. However, the study also finds that about four human resource practices namely equal opportunities policies, appraisal system as well as recruitment/selection procedure are mainly used by the SMEs. Kotey and Slade (2005) survey about 1330 small and medium enterprise in Australia and find that majority of the firms use formal HRM practices as they grow.

Firm Performance

Firm performance can be viewed from different angles based on the purpose of study. As reported in Lee et.al (2010), some researchers have studied the effect of HRM practices on different forms of firm performance which include; turnover of productivity, employee, efficiency and financial an performance, customer satisfaction, absenteeism, turnover, productivity and quality. With reference to Lee et. al (2010), performance criteria measures have been operational identified; superior quality, which include dependable and short delivery, efficiency, volume flexibility, development of fast new product with low cost, quality, cost and delivery.

According to Jayaram, Droge and Vickery (1999), the flexibility scope involves many activities which comprise: handling of non-standard orders, adjusting product mix and producing products in small quantities. The timing of the introduction of new products as well as on-time delivery is viewed as flexibility in delivery. Following Lee et al. (2010), four dimensions of operational performance which are accepted in the academic field are used in this study. The four dimensions are: production cost, production flexibility, product quality and product delivery.

As stated in Lee et.al. (2010), different dimensions which include product functions (product performance), reliability, standard product (product specifications), reparability of service (product serviceability), product life and so on are included in product quality , while the ability to minimize costs is achieved through efficiency in operations, scale economies and process technology; product delivery, service organizations can out-perform competitors by employing production led times reduction ,a fast delivery network; the development of new processes for new products, offering workers multiple tasks and set-up times are aspects of production flexibility.

Human Resource Management Practices and Firm Performance

Studies on HRM have used three major variables, namely financial outcome, organisational outcome and HRrelated outcome to represent firm performance. Financial outcome are represented by profit, sales and increase in market share, organisational outcome represents productivity and efficiency while HR-outcome represents attitudinal and behavioural impact such as satisfaction and commitment (Paauwe and Boselie, 2005).

In his study on how human resource management practices are perceived by subordinates and supervisors in six outlets of a large international retailer in Malaysia, Tay, (2011) reveals that supervisors mostly rated higher than their subordinates on employees' ability to participate in decision-making and training programmers, as well as on the presence of relevant resources, information, and fair rewards across the six outlets. In addition, he argues that there are differences in opinions between how employees from the different outlets perceive the extent to which the four components of HRM practices are present in their respective organizations. Subramaniam, (2011) provides empirical evidence on the relationship between compensation, information sharing, job security and training and development and organisational performance among 84 small and medium organisations in the central region of peninsular Malaysia. Their regression show that all dimensions except job security show positive relationships to organizational performance.

In their study on private companies' performance, Abdullah, Ahsan, & Alam, (2009) stated mainly six HRM practices that affect Malaysia. They find correlation between private firm business performance in Malaysia and four HRM practices. Their regression results show positive and significant influence on business performance as a result of performance appraisal, training and development, HR planning and team work.

In his study, Lee et al., (2005) examine how the features of a firm's HR practices and processes relate with firm performance in about 600 foreign-owned companies in Singapore. To measure firm performance, growth in sales and profit margin averaged over the last three years are used. By using hierarchical regression analyses, the result shows positive relationship between firm performance and human resource practices.

In his study, Singh K. (2003) studies about 500 Indian firms. His results show that variation in the overall firm performance changes as a result of grouping of interaction of HR practices. Similarly, Park et al., (2003) examine the relationship between a system of HR practices such as employee skills, employee attitudes, employee motivation and performance process through firm and the which organizational outcome is affected by these HR practices. His result on 52 Japanese multinational corporation subsidiaries whose operation are based in the United States and Russia show a positive relationship between firm performance and HRM practices. In the manufacturing companies of Malaysia, Long & Resource, (2009)examine the important HR professional competencies. They use Human Resource Survey (HRCS) model Competency to examine the relationship between firm performance, personal credibility,

business knowledge, HR delivery, HR technology strategic contribution. From 32 respondents, they find that the top nine ranking HR competency factors in Johor arise from HR delivery and personal credibility. From the self-rated competency of the respondents, their sample reveals that among the factors that, personal communication, effective relationship, performance management and legal compliance rank above others. They state that firm performance correlates with competencies such as business knowledge, HR technology and strategic contribution have significant. Richard and Johnson (2001), examine whether SHRM effectiveness (empowerment and participation of the employee; teamwork; deployment and workforce planning- flexibility; advanced issue identification-strategic studies; executive development and management; development planning and succession, quality of output and workforce productivity; manager and employee communications) are related to organizational effectiveness (productivity and turnover), in some banks in the United State. Their results show higher SHRM correlation with firm performance, though the extent of the correlation depends on the performance measure used.

3. Methodology - Conceptual Framework

The conceptual framework for the study is presented in Figure 1. Figure 1: A Conceptual Model of HRM Practices, and Firm Performance

| HRM Practices |
|--------------------------|
| Selective Hiring |
| Performance Appraisal |
| Behaviour and Altitudes |
| Training and Development |
| Compensation |
| HR Planning |
| Employment Security |
| Teamwork |



The above research model is developed to answer the research question, H1 represents hypothesis.

Research Design

A quantitative research design is employed. This design is delivered through the use of structured questionnaires comprising selected response item scales as well as quantitative performance information distributed to SMEs in the Kuala Lumpur area of Malaysia. The Population of interest for this research are the SMEs in Malavsia. The Malavsian small firms are important due to their ability to generate a high level of employment. The dependent variable used in this study to measure the main objective is firm performance. Specifically, performance of these firms is measured with variables that ask questions on product quality, production cost, flexibility and delivery as suggested by Lee et al., (2010). The independent variables include are the activities and functions directed towards the attraction, development and retention of firm's pool of human resource as used in previous literature. All items are measured using 5 point likert scale where strongly disagree is coded as "1" while strongly disagree is coded as "5".

Hypotheses

Based on the conceptual framework, the following hypotheses are developed:

Hypothesis 1: There is a significant positive relationship between performance of SMEs and teamwork.

Hypothesis 2: There is a significant positive relationship between performance of SMEs and behaviour and attitude.

Hypothesis 3: There is a significant positive relationship between performance of SMEs and compensation.

Hypothesis 4: There is a significant positive relationship between performance of SMEs and training and development.

Hypothesis 5: There is a significant positive relationship between performance of SMEs and selective hiring.

Hypothesis 6: There is a significant positive relationship between performance of SMEs and HR planning.

Hypothesis 7: There is a significant positive relationship between SMEs' performance and performance appraisal.

Hypothesis 8: There is a significant positive relationship between SMEs' performance and Employment Security.

Sampling Procedure

The study is conducted across all small and medium enterprises in Kuala Lumpur area of Malaysia. The selection of the sample size is through random sampling method which produces 100 SMEs from the SMEs within this area. The questionnaires are distributed to about 100 SMEs which cut across all industries within Kuala Lumpur area of Malaysia. This location has a large number of local and international institution of learning and therefore lack of human resource persons might be absent in this region. The formula as stated in Lee et. al., (2010) is used to calculate the sample size and it is expressed as:

 $n = p(1-p) [Z_{\alpha/2} \div B]^2$

Where n equals the sample size which the study needs, $Z_{\alpha/2}$ equals to the confidence level, and B represents the error tolerance. To obtain a normally distributed sample as reported in Lee et.al. (2010), the value used as p is 0.5 and $Z_{\alpha/2}$ equals to 1.96 by setting confidence interval to be 0.05, and error bond or error tolerance to be 0.10. Therefore, the study needs a sample of 96 but the sample is increased to 100.

Statistical Analysis

To measure the relationship between human resource practices, and firm performance, this study uses regression analysis. An overview of the basic model is stated below as:

 $\textbf{\textit{Y}}_i = \ \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \ldots \ldots \beta_n X_{ni} + U_i$

Where Y_i = firm performance, X_1 , to X_n are human resource practices in the first regression, U_i = error term, β_0 = constant, $\beta_1 \dots \beta_n$ are coefficients and i = firm index.

The reliability and validity of variables used in this study are tested. The variables pass the minimum required Cronbach alpha value required for a reliable analysis except for employment security that is a little bit below the minimum value and as a result is dropped from the analysis. For the tested instruments, the Cronbach alphas obtained are as follows: compensation 0.91, training and development 0.83, performance appraisal 0.77, teamwork 0.82, selective hiring 0.77, behaviour and attitude 0.80, human resource planning 0.77 and 0.86 for firm performance. The result of the Cronbach alpha for the entire variables is shown in table (Table 3.1).

| Construct (N=100) | Instruments (a) | No of items |
|--------------------------------|--------------------------|-------------|
| Ι | Human Resource Practices | |
| Selective Hiring | 0.77 | 9 |
| Behaviour and Attitude | 0.80 | 4 |
| Training and Development | 0.83 | 4 |
| Teamwork | 0.82 | 4 |
| Performance Appraisal | 0.77 | 5 |
| Human Resource Planning | 0.77 | 4 |
| Compensation | 0.91 | 4 |
| | Firm Performance | |
| Operational Performance | 0.86 | 6 |

Table 3.1 Cronbach Alpha Values

Using principle component analysis for a factor analysis with an orthogonal varimax rotation is carried out to validate the instruments used in establishing human resource management practices and firm performance. It is shown that the entire instruments loaded well (Appendix A) with correlation above 0.5 which suggests that internal consistency for each of the dimensions is of high degree (Lee et al., 2010, Ahmad and Schroeder, 2003). In creating these measures of HRM practices and firm performance, no item is dropped as they loaded heavily with an anti-image correlation of 0.5 and above (Appendix A). The factor analysis yields a five factor solution with respect to human resource practices. These explain 54% variance (Table 3.2). Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy score is (0.79) which is exceeds the recommended 0.5 level and Bartlett's test of sphericity is significant. For firm performance, the analysis explains 60% variance (Table 3.2) with a single factor solution. Bartlett's test of sphericity is significant and Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy score is (0.86).

| | Human Resource Practices | Firm Performance |
|---|--------------------------------|-----------------------|
| %age of Variance Explained | 54 | 60 |
| Kaiser-Meyer-Olkin Bartlett's Test of Sphericity Chi-Square | 0.79 df=703 2180 | 0.86 df= 15 252 |

Table 3.2 Summary of Factor Analysis Result(significant at 1% level)

4. Results and Discussion Characteristics of Firms and Respondents

In figure 3, 34 % of the firm CEOs has master's degree while 7% has studied up to PhD level. It can be inferred from this that more strategic practices will be obtained in the study area as most of the sampled group have high level of education. This confirms the assumption that the study group is situated in an education centre.

However the number of respondents with less than secondary education is 2%, those with secondary education are 10% while others are 4%. The highest % age level of qualification of CEOs in the study group is bachelor's degree where up to 43% of respondents have studied to degree level in their respect fields of operation. From the descriptive statistics as shown in figure 4, it can be said that the service sector (72%) is more in number than the manufacturing sector (22%) in the studied location. This agrees with fact that; of the total number of SMEs in Malaysia, about 86.5% are in the services sector while the manufacturing and the agricultural sector account for about 7.3% and 6.2% respectively. The reason is not farfetched as the service sector is becoming increasingly important as a source of national revenue and most governments have positioned their policies to encourage service sector development.



Figure 3 Respondents Level of Qualification Figure 4



| Characteristics | Categories | Frequency | %age (%) |
|--------------------|---------------------|-----------|----------|
| | | | |
| Sector Type | Service | 72 | 72 |
| | Manufacturing | 28 | 28 |
| Qualification | < Secondary | 2 | 2 |
| | Education | | |
| | Secondary Education | 10 | 10 |
| | Bachelor's Degree | 43 | 43 |
| | Master's Degree | 34 | 34 |
| | Doctorate Degree | 7 | 7 |
| | Others | 4 | 4 |
| Years of Operation | 1-5 | 32 | 32 |
| | 6-10 | 19 | 19 |
| | 11-15 | 21 | 21 |
| | 16-20 | 13 | 13 |
| | Others | 15 | 15 |
| Number of | 1-50 | 76 | 76 |
| Employees | | | |
| | 51-100 | 15 | 15 |
| | 101-150 | 3 | 3 |
| | 151-200 | 6 | 6 |
| | (NI-100) | | |

(N=100)

From figure 5, 32% indicates that their number of years of operation is between 1 and 5, 19% has functioned between 6 and 10 years, 21% has been in operation for 11 to 15 years,

13% has been in operation for 16 to 20 years while 15% has been in business for over 20 years. The higher %age of recent SMEs indicates an increasing involvement of entrepreneurs into SME operation in the study area. About 76 % of SMEs in the study area have workforce of less than 50 workers (figure 6) while 15% employ between 51 and 100 workers. 3% of SMEs in this study location employ between 101 and 150 workers while 6% of them employ more than 150 workers. The high %age of SMEs in the study location employ less number of workers and this might be due to the nature of their business or that they have not grown to the extent of employing more workers at their current stage of operation.

Regression Results

Table4.2HumanResourcePracticesandSMEsPerformance

| I el loi munee | | | | |
|----------------------|-------------------------|-------------|---------|--------|
| Independent Variable | es | Firm Perfo | rmance | |
| | Coefficient | t- | P- | VIF |
| | | statistics | value | |
| Training and | 0.29*** | 3.33 | 0.00 | 1.53 |
| Development | | | | |
| Selective Hiring | 0.27** | 2.20 | 0.03 | 1.63 |
| Behaviour and | 0.22** | 2.00 | 0.04 | 2.03 |
| Attitude | | | | |
| Teamwork | 0.07 | 0.73 0.47 | | 1.61 |
| Performance | 0.08 | 0.80 | 0.43 | 1.67 |
| Appraisal | | | | |
| Human Resource | 0.09 | 0.89 | 0.38 | 1.61 |
| Planning | | | | |
| Compensation | 0.08 | 0.89 | 0.38 | 1.37 |
| (Constant) | 0.76 | 2.00 0.04 | | |
| F-Value | 22.24*** | | 0.00 | |
| $R^2 = 0.41$ | Adjusted R ² | = 0.40 Du | rbin Wa | tson = |
| | 1.92 | | | |
| **and *** | represent sig | nificant at | 5% ar | d 1% |

and * represent significant at 5% and 1% probability level

To test the effects of HR practices, on SMEs' performance, a step- wise multiple regression analysis is carried out. The regression analysis aims at getting

information with regards to the nature of the relationship between the variables. Table 4.2 presents the results of the analysis of the effect of human resource practices on the operational performance of SMEs in the sampled area. As notable from Table 4.2, the result shows a positive relationship between human resource practices and SMEs performance. The variables are significant at 1% probability level with Fvalue of 22.24. The result agrees with the findings of Lee et al., (2005) who examine how the characteristics of a firm's human resource practices and processes (HRPPs) are associated with firm performance in about 600 foreign-owned companies in Singapore by using hierarchical regression analysis.

The results also show that training and development, selective hiring and behavoiur and attitude affect SME performance positively. Training and development is statistically significant at 1% with a coefficient of 0.29 and tvalue at 3.33. Selective hiring and behavoiur and attitude are also significant at 5% probability level with t- values and coefficients of (2.20, 0.27) and (2.00, 0.22) respectively. The result agrees partly with the findings of other researchers notably Subramaniam, (2011) who provides an empirical relationship between compensation, evidence on the information sharing, job security and training and development and organisational performance among 84 small and medium organisations in the central region of peninsular Malavsia. Though all his variables except job security are positive, in this study, only three variables are significant in explaining the relationship of HR practices and SMEs' performance while others (teamwork, performance appraisal, HR Planning and compensation) are insignificant in establishing a relationship. The finding is consistent with studies indicating that higher the training and development facility provided by the company the better the performance will be. The study agrees with Abdullah, Ahsan, & Alam, (2009) who find that training and development has a positive impact on business performance while compensation/incentive and job security are insignificant to explain performance in Malaysian private companies. Attitude to work may affect individual productive capabilities

and consequently affect firm performance. Selective hiring is positive and this shows that a rigorous, valid, and sophisticated selection system helps in identifying a right candidate with potential to perform the function though (Singh, 2003) has shown that a human resource selection process that is based on selective hiring leads to about 6% variation in firm performance. We therefore accept the hypothesis that HRM practises affect firm performance. However, we only accept the hypothesis that selective hiring, behaviour and attitude and training and development are the significant determinants of HRM practices in this study group.

Model Fit, Normality of Data and Multi-Collinearity

In determining the presence of multicollinearity among the explanatory variables in this study, both Tolerance and Variance Inflation Factor (VIF) are estimated. The result of VIF is reported alongside with each regression result. Notably from each table where the regression result is reported, all of the Tolerance levels are within the acceptable range as can be seen from all VIF values which are well below 5. Thus, the presence of multicollinearity is absent in the sampled group. For the test of model fit, the Durbin –Watson range falls between the acceptable values (near 2) for all the regression results. This reveals the absence of any auto correlation problems existing in the data used in this research. The normality plots of residuals also reveal the fulfillment of normality assumption.

5. Conclusion

The study examines how human resource management practices impact on Malaysian SMEs performance. The specific objectives examine how HR practices (selective hiring, behaviour and altitude, training and development, teamwork, HR planning, performance appraisal, compensation/incentives and employment security) impact on SMEs performance in Malaysia. A quantitative research design is employed and the population of interest for this research is the SMEs in Kuala Lumpur area of Malaysia. 100 SMEs are sampled using random sampling method while regression analysis is used to achieve the objective.

The finding of this study is very much related to the results obtained by previous researchers. The evidence from the results shows that HR practices affect SMEs operational performance. For the individual HRM elements, the evidence shows that only training and development, selective hiring and behavoiur and attitude significantly and positively affect the performance of SMEs in the studied group. However four out of the seven variables are insignificant in helping to explain HP practices' impact on SMEs operational performance although the coefficients are positive. This study reveals three significant indicators of HRM affecting SME operational performance. However, there is a positive effect of HRM practices on SMEs performance. The results show that other factors are insignificant to explain SMEs performance. The positive result can be attributable to the three significant HRM variables; therefore, it is important that HRM practices with regards to these insignificant factors be improved. It is necessary that government encourages SMEs to have better HR practices. It is also important that the existing SMEs in the study area should improve on their HRM practices especially in the area of teamwork, performance appraisal, human resource planning and compensation. A close link with all business organization should be encouraged so that they can improve on their practices.

Limitation of the Study

While this study makes much contribution towards the on-going research on SMEs' HRM practices and performance, it is also limited in many ways. Sampling issue becomes one of the notable limitations. Though the results are positive, this cannot be used to make generalizations in Malaysia as a whole as only small group is studied. Notwithstanding, the results have shown an insight of what is obtainable with regards to HRM practices and the performance of SMEs in Malaysia. In addition to this, the study focuses only on operational performance and other forms of performance are not included in the study. Other moderating variables such as the effect of the relationship between the supervisors and subordinates on firm performance are not included in the study as this might have an important effect on the outcome since the relationship between the two is important in organizational performance.

Recommendations for Future Study

It is recommended that future studies may consider doing a cross- regional or inter- state analysis to be able to make accurate generalization on the relationship between HMR practices in SMEs and its impact on performance. Only a portion of a state is studied though with an adequate sample. Effect of mediating variables cannot be overemphasized in this analysis and as a matter of fact their inclusion in such analysis will generate a better outcome. It is recommended that future study might consider comparing SMEs HRM practices with that obtainable in large firms. HRM and business strategies should be studied as well.

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APPENDIX A

| Anti-image Correlation Matrices | | | | | | |
|--------------------------------------|-------------------|-------------------------|-------------------|--|--|--|
| Selective Hiring | .831ª | Employment Security | .776ª | | | |
| Selective Hiring | .889ª | Employment Security | .520ª | | | |
| Selective Hiring | .706 ^a | Employment Security | .796 ^a | | | |
| Selective Hiring | .607ª | Employment Security | .744 ^a | | | |
| Selective Hiring | .763ª | Human Resource Planning | .724ª | | | |
| Selective Hiring | .687ª | Human Resource Planning | .634ª | | | |
| Selective Hiring | .663ª | Human Resource Planning | .763ª | | | |
| Selective Hiring | .775ª | Human Resource Planning | .754ª | | | |
| Selective Hiring | .694ª | Compensation | .852ª | | | |
| Behaviour and Alttitude | .788ª | Compensation | .731ª | | | |
| Behaviour and Alttitude | .787 ^a | Compensation | .729 ^a | | | |
| Behaviour and Alttitude | .857 ^a | Compensation | .805 ^a | | | |
| Behaviour and Alttitude | .853ª | Performance appraisal | .500 ^a | | | |
| Training and Development | .831ª | Performance appraisal | .768ª | | | |
| Training and Development | .794 ^a | Performance appraisal | .628ª | | | |
| Training and Development | .864ª | Performance appraisal | .740ª | | | |
| Training and Development | .827ª | Performance appraisal | 758a | | | |
| Teamwork | .836ª | Firm Performance | .724a | | | |
| Teamwork | .824ª | Firm Performance | .821a | | | |
| Teamwork | .862ª | Firm Performance | .880a | | | |
| Teamwork | .824ª | Firm Performance | .809a | | | |
| Firm Performance | .890 ^a | Firm Performance | .825a | | | |
| a Measures of Sampling Adequacy(MSA) | | | | | | |

APPENDIX C

Communalities

| | Initial | Extraction |
|--------------------------|---------|------------|
| Selective Hiring | 1.000 | .784 |
| Selective Hiring | 1.000 | .671 |
| Selective Hiring | 1.000 | .646 |
| Selective Hiring | 1.000 | .555 |
| Selective Hiring | 1.000 | .749 |
| Selective Hiring | 1.000 | .563 |
| Selective Hiring | 1.000 | .627 |
| Selective Hiring | 1.000 | .594 |
| Selective Hiring | 1.000 | .634 |
| Behaviour and Alttitude | 1.000 | .725 |
| Behaviour and Alttitude | 1.000 | .784 |
| Behaviour and Alttitude | 1.000 | .695 |
| Behaviour and Alttitude | 1.000 | .693 |
| Training and Development | 1.000 | .670 |
| Training and Development | 1.000 | .647 |
| Training and Development | 1.000 | .789 |
| Training and Development | 1.000 | .630 |
| Teamwork | 1.000 | .591 |
| Teamwork | 1.000 | .731 |
| Teamwork | 1.000 | .739 |
| Teamwork | 1.000 | .691 |
| Performance appraisal | 1.000 | .698 |
| Performance appraisal | 1.000 | .780 |
| Performance appraisal | 1.000 | .749 |
| Performance appraisal | 1.000 | .642 |
| Performance appraisal | 1.000 | .713 |
| Human Resource Planning | 1.000 | .751 |
| Human Resource Planning | 1.000 | .743 |
| Human Resource Planning | 1.000 | .701 |
| Human Resource Planning | 1.000 | .740 |
| Compensation | 1.000 | .829 |
| Compensation | 1.000 | .732 |
| Compensation | 1.000 | .828 |
| Compensation | 1.000 | .734 |
| Employment Security | 1.000 | .730 |
| Employment Security | 1.000 | .640 |
| Employment Security | 1.000 | .741 |
| Employment Security | 1.000 | .690 |

Extraction Method: Principal Component Analysis.

| Component Matrix ^a | |
|-------------------------------|-----------|
| | Component |
| | 1 |
| Firm Performance | .812 |
| Firm Performance | .779 |
| Firm Performance | .775 |
| Firm Performance | .764 |
| Firm Performance | .759 |
| Firm Performance | .753 |

APPENDIX D

Extraction Method: Principal Component Analysis.

a. 1 components extracted.

APPENDIX E



APPENDIX F



Globalization and Women's Economic Status in the Arab World

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Globalization and Women's Economic Status in the Arab World

Abstract. Globalization can be affected all states, both positively and negatively cannot any state cab be isolated its economy from the impact of globalization. Sequentially, Arab countries suffer from declining rates of economic growth, and remain unable to achieve growth rates that promote the economic empowerment of their populations. Especially, women who are usually the weakest link in Arab societies. In fact, globalization has been increased female unemployment rates in the Arab world. This study aims to explore Arab women's labour force participation, and to explain the very low %age of Arab women compared with men in the labour force in Arab countries.

Introduction

In fact ,the labour force participation of Arab women is very low statistically; however, during the last ten years Arab women have started to become more educated. While their educational levels gradually increase, the gender gap in the labour market is still decreasing in the most Arab countries. For instance, the rate of Arab women's labour force participation in 2007 was 18.4%. Approximately 1.2 billion women. Despite this fact, women in Arab countries are still earning less than men, because women are confined to working in less productive economic sectors, which are characterised by greater risks and which are less likely to meet the requirements that define decent employment (including access to social protection, basic rights and the ability to express their views in the workplace).ⁱ

It also examines the Arab women's Labour Force Participation figures to see the rates of female participation in the labour force. In addition it will explore the level of unemployment of women in the Arab countries, to establish the rate of unemployment of Arab women as result of globalization. The impact of globalization on women's economic status in the Arab world is also investigated, since the relationship between globalization and increasing unemployment rates among women can provide answers to some major questions; e.g., how does globalization cause increases in female unemployment rates? And specifically, why are these rates rising among women in Arab countries?

Arab Women's Labour Force Participation

Although statistics showed the Arab female labour force has increased in number in the last few years, it can be seen from Chart (1) that there is still a considerable disparity among males and females in labour force participation. This confirms that Arab women are still less visible economically and also that they still face many problems and difficulties in their working lives, when compared with men. Figures for 2003 indicated that Morocco was ranked first for women's participation in the labour market, with a rate of 31 %. In the countries of the Gulf Cooperation Council (GCC), the rate was 23 % in Kuwait and 23 % in Bahrain, falling to 20 % in Saudi Arabia, 17 % in Qatar, and only 14 % in Palestine according to the Arab Human Development Report for 2005. In the other Arab countries the rate was 25 % in Libya, 30 % in Sudan, and 26 % in Jordan, which has raised the employment rate for women in 1991-2003 to 50 %.ⁱⁱ

The Arab Human Development Report in 2005 also emphasized that, "women do not enjoy equal status with men in respect of working conditions, or in terms of opportunity for promotion to the top of the decision-making ladder in public and private enterprises."ⁱⁱⁱ Nor does the fact that women are recording high levels of education mean that they will be any less vulnerable than men with regard to unemployment. Additionally, the low rate of women's labour force participation means that the Arab countries are giving up much of the potential return on their investment in woman's education.^{iv}

If we consider the education factor, we find that in Libya, education has long been considered an important factor in changing the social and economic status of women. Since the 1980s, for example, the number of female students in university education in Libya has been increasing, indicating that Libyan women have realized the importance of education as a way into the labour market. High educational levels have also increased opportunities for females to work across many sectors, and it is not unusual in Libyan society to find women in jobs ranging from bus drivers/conductors to positions in the building and construction industries. However, in spite of equal employment opportunities and equal incomes for both men and women with the same qualifications, experience suggests that males still have greater opportunities to assume leadership positions. v

In the 1990s Libyan women constituted an important element in the labour market, having entered this market through education, which enabled them to acquire the capacity to deal with the evolution of production efficiency and to increase productivity. It can be seen from the statistical data that there has been a continuous increase in the participation of Libyan women in the labour market, where the participation rate of 6.5 % in 1970 had risen to 25.3 % by 2002.^{vi}However, this is still a fairly low %age when compared to Libyan men. And as the statistics show, women in Libya are still concentrated in a fairly limited range of functions, such as teaching, nursing and secretarial and typing services. The concentration of women in such positions can be traced back to more conservative social attitudes, to socialization issues that are connected to the perceived importance and desirability for women to work in the home,

and to the lack of demand for a new approach on the part of the leadership or of the important decision-makers.^{vii}

Chart (1) shows Male and Female Labour Force participation rates as indicated in the International Labour Organization Report (2008). In the Arab countries in both the Middle East and North Africa regions, there are indications of an increase in the rate of female labour participation during the ten-year period from 1997 to 2007:

Chart (1) Female and Male Labour Force Participation rates 1997-2007



Source: International Labour Organization, March 2008

During this period it can be seen that the rate for women's labour force participation increased by an impressive 7.7 % age points for the Middle East compared with the rest of the world where women's participation rates ranged from 42 to70 % (Table 1). From Chart1 it can be seen that Arab women's participation rate was recorded as 33.3 % in the Middle East in 2007, an increase from only 25.6 % in 1997. The chart also shows the increased level of participation for men in the same period, the rate of male labour force participation in the Middle East being 77.5 % in 1997, rising slightly to 78.3 % in 2007. In North Africa the rate of female labour force participation was 23.8 % in 1997

and 26.1 % in 2007, while male participation was recorded at 75.5 % in 1997 and 75.9 % in 2007. This confirms the low rate of women's labour force participation compared with that of men in the Middle East and North Africa regions. Another important indicator for measuring employment rates among woman in the Arab countries is the rate of male and female employment to population ratios. The total population in the Arab countries is 307 billion, 50 % of whom are women. Table (1) shows that in the Middle East approximately 25 % of women have jobs, compared with 70 % of males, indicating that the rate of women's labour force participation in the Arab countries is less when compared with the rest of the world, which recorded 49 %.

 Table (1) Global Employment & Population Rates among Women

 and Men (total & youth)

| | Female total | | Male total | | Female | | Male youth | |
|--------------|--------------|------|------------|------|--------|------|------------|------|
| | | | | | you | | | |
| | 1997 | 2007 | 1997 | 2007 | 1997 | 2007 | 1997 | 2007 |
| World | 49.5 | 49.1 | 75.7 | 74.3 | 42.5 | 40.1 | 58.3 | 55.1 |
| Developed | 47.2 | 49.1 | 65.9 | 64 | 42.1 | 42.8 | 48 | 45.6 |
| Economies | | | | | | | | |
| East Asia | 68.7 | 65.2 | 80.9 | 78.4 | 69.8 | 64.5 | 66.8 | 61.6 |
| Middle East | 20.8 | 28.1 | 68.7 | 70.3 | 15.3 | 19.5 | 42.3 | 44.3 |
| North Africa | 19.9 | 21.9 | 67.8 | 69.8 | 15.4 | 14.7 | 42.1 | 39.8 |

Source: International Labour Organization, March 2008

Chart (2)

Female total and youth and Male total and youth Employment to Population rate



In North Africa during 2007, only 21 % of women had a job, while employment for men ranged between 69-70 % for both Middle East and North Africa. The rate for female youth in the Middle East was recorded at around 15.3 and 19.5 % in 1997 and 2007 respectively, and in North Africa at around 15.4 and 14.7 % during the same period.

From Chart 2, it is clear that the rate of men in both categories (male total and male youth), is higher than for females in both categories in the two regions – Middle East and North Africa. It should be pointed out here that some of the figures are approximate or estimated, since some Arab countries still have inaccurate data.

The Level of Unemployment of Women in the Arab countries

Concerning the employment rate for Arab women, the data suggests that there has been a significant rise in the unemployment rate among females when compared to men in the Arab countries, as the ratio of women was 16 % to 10 % of males. This % age could be attributed to the increasing incidence of high entry/exit rates for women in the labour market. However, the sectoral distribution of employment of

Arab women has shown a small % age of change over the past ten years. The participation of Arab women in industry and in nonagricultural areas, is much less in developing countries. It can be noted here that there is a greater proportion of Arab women employed in the service areas; women in the agriculture sector in the Middle East region in 1997 accounted for 28%, and for approximately 32% in 2007. In the North Africa region, women's employment in the agriculture sector was 31% in 1997, and about 33% in 2007. It should be noted here that according to the digital data Arab women want jobs of good quality as there has been a significant increase over the past ten years in the share of women in paid jobs, though working for lower remuneration. The share of women is now 55% in the Middle East and about 58% in North Africa, meaning that it is catching up with the share of men, which in 2007 amounted to about 65% and 60% in the Middle East and North Africa areas respectively. Table (2) indicates that the share of Arab women in paid casual work and salaried employment in 1997 was approximately 44% in the Middle East, and about 49% in area of North Africa, compared to the share of males, which ranged from 59% in the Middle East and about 57% in the North Africa area. In 2007, there was a market increase in the share of Arab women due to an increase in the proportion of education for woman, despite the existence of a kind of social bias towards males when looking at type of function and importance. The data in Table (2) shows the level of male and female status in employment (as a share of total employment. Regarding the type of employment, numbers of Arab women increased relatively more than for men, with the proportion of women in the Middle East. Comparing the proportion of men with the lowest proportion of women with a ratio of males in Middle East and North Africa regions, the share of women in vulnerable employment is much higher than for men, being 43.2 % for female compared to 28.2 % for male in 2007.

| | North Afr | rica 1997 | North Africa 2007 | | Middle East 1997 | | Middle East 2007 | |
|---|-----------|-----------|-------------------|------|---------------------|------|---------------------|------|
| | Female | Male | Female | Male | Female | Male | Femal e | Male |
| Wage and salaried working (%) | 49.3 | 57.1 | 58.4 | 59.9 | 43.7 | 58.7 | 55.3 | 65.2 |
| Employer s (%) | 2.2 | 9.4 | 3.2 | 11.9 | 1.1 | 5.8 | 1.5 | 6.7 |
| Own- account workers (%) | 16.2 | 17.9 | 12.4 | 16.2 | 25.7 | 28.1 | 17.9 | 23.0 |
| contributi ng family workers (%) | 32.3 | 15.6 | 26.0 | 12.0 | 29.4 | 7.4 | 25.3 | 5.2 |
| Vulnerabl e employm ent (%) | 48.4 | 33.5 | 38.4 | 28.2 | 55.2 | 35.5 | 43.2 | 28.2 |

Table (2) Male and female status in employment (as a share of total employment)

Source: International Labour Organization (ILO) (2008); Global Employment Trends for Women (Geneva: March 2008).

The % age contribution of family workers for female is 25.3 % in the Middle East and 26.0 % in North Africa in 2007, compared with 5.2 % for males in the Middle East, and 12.0 % in North Africa. With regard to Arab women who work as employers, the proportion is very small; the only available statistics are for 2007, and suggest that the % age

may not exceed 1.5 % for female in the Middle East, and 3.2 % in North Africa, compared with the share of men as owners and/or employers where the figures for male are 6.7 % in the Middle East and the rate of 11.9 % in North Africa. Perhaps the reason for this increase in the employment of women in the public sector in the Arab region is because the sector is more easily accessible. It offers advantages that are often more attractive, and it is characterized by job security. It can be noted here that the statistical data of Arab women confirms the social reality that women contribute significantly to the support of their families, and it can be generalized that most Arab families are supported by women.

The Impact of Globalization on the Economic Status of Arab Women

Globalization affects all states, both positively and negatively; nor can any state isolate its economy from the impact of Globalization . After more than three decades and up to the present, the rate of economic growth in most developing countries, including in the Arab region, means that most populations are living in low-level economies, and therefore below the level that would make a country capable of achieving real growth rates to enhance the economic empowerment of the people, especially among the segment that is the marginalized and vulnerable, i.e., women. Reports have been published on economic growth rates in many Arab countries which indicate that rates of growth achieved since the beginning of the 1990s signify an aboveaverage year if the % age level of growth varies between 3.2 % and 5.5 %. However, the unemployment rates in this % age range are high, and poverty continues to increase, especially among women. Therefore, the Arab countries need to increase investment rates, so that they can achieve the high economic growth rates seen elsewhere, and that will allow them to create job opportunities that are commensurate with the growth rate of employment of new entrants into the labour market, and to address the growing unemployment among the various segments of society, especially among young people of both sexes.

| | Total Female | | Total Male | | Female Youth | | Male Youth | |
|--------------------------|--------------|------|------------|------|--------------|------|------------|------|
| | 1997 | 2007 | 1997 | 2007 | 1997 | 2007 | 1997 | 2007 |
| World | 6.5 | 6.4 | 5.8 | 5.7 | 12.3 | 12.5 | 12 | 12.2 |
| Development Economies | 8.1 | 6.7 | 6.7 | 6.2 | 15 | 12.5 | 14.4 | 13.8 |
| East Asia | 3.1 | 7.2 | 7.2 | 3.8 | 6.3 | 5.8 | 8.7 | 7.9 |
| Middle East | 18.6 | 15.6 | 15.6 | 10.3 | 33.4 | 29.5 | 23.3 | 21.1 |
| North Africa | 16.2 | 16.2 | 16.2 | 9.0 | 30.3 | 32.3 | 22.2 | 21.2 |

 Table (3) Male and Female Unemployment rate Total and youth 1997-2007

Source: International Labor Organization (ILO) (2008); Global Employment Trends for Women (Geneva:March 2008).

The impact of Globalization on Arab women in the Arab region cannot always be compared to the status of women in countries within different regions of the Third World. This is due to the conditions of the economies of the region and a decline that is due in part to weak economic structures and partly to other policy aspects that constitute the process of Globalization, as well as the specificity of the complex situations that Arab women face. Globalization has led to an increase in the low participation of Arab women in economic activity and thus to the further deterioration of their economic status. Through the use of the preceding tables it is possible to reconstruct a series of negative outcomes brought about by Globalization that have had a damaging impact on the situation of women. One result has been the fundamental changes that have occurred since the beginning of the 1990s, when many Arab States began to initiate programmes to modify the structural basis of their economies - through trade liberalization, privatisation, and strengthening the role of the private sector – as an essential principle in promoting a market economy in order to achieve high rates of economic growth.

Instead the opposite effect has occurred. On the one hand, the state has withdrawn from its leadership of the development process because of lack of experience, and this is reflected in the decline of the public sector. On the other hand there is the trend towards short-term investments and other projects that achieve rapid profit. Therefore, women lost their jobs in the public sector and in the government at the same time that the private sector was reluctant to expand its employment of women. This was due to the belief that the cost of employing women was higher than the cost of employing men, since women were seen as less efficient than men. As a result there were high unemployment rates among women that exceeded such rates among the male workers This can be confirmed through the use of the same figures and data given in Table (3). The unemployment rate among females in the two sections of the Arab World - the Middle East, and North Africa – were published by the ILO in March 2008, and the data indicated that in 1997 the unemployment rate for females in the Middle East region stood at 18.6 % while the figure in the North Africa region was 16.5 %. In 2007, the unemployment rate for females in the Middle East stood at approximately 15.5%, and 16.2% in North Africa. The figures were recorded at a time when the unemployment rate for males was approximately 10.3% in the Middle East and 9% in North Africa.

Table (3) also records the unemployment rate of females in the Middle East region at 33.5% for the proportion of young women and 23.3% for young men. At a time when the unemployment rate recorded in the North Africa to 30.3% for females and 22.2% for the proportion of males in 1997. Rates in 2007 are still considered high as the unemployment rate rose in the Middle East for females to 29.5% and by 21.1% for males, while the unemployment rate in the North Africa area rose for females to 32.3% and 21.2% for males., Such rates indicate the high proportion of unemployed women, both among females in general or among young women compared to males.

Table (3) reveals the hidden truth i.e., that women, for a variety of reasons, are more vulnerable to poverty than men. Employment opportunities available to females have been limited by economic changes, especially in the areas of public sector and government. We can also recognize the clear fact that despite the capacity and skills

acquired from the identified demand for employment of women, the labour market recognizes only highly skilled labour, particularly in the Arab community which prefers men to women, even if the latter have the highest capacities and skills. In Arab societies there is also the question of favoritism in gaining access to employment, which is exercised by employers towards men and against women.

A further point of reference must be to confirm that the economic globalization, and the rule of the free economic system of trade liberalization and expansion of direct and indirect investment. It should have been according to economic logic that leads to funk to support economic growth and development through increased exports and investment rates, And thus create employment opportunities for women to be the share of which improves the level of participation in economic activity. But the reality is different to what predicted difficult economic logic. Globalization did not achieve economic development a reality in the Arab countries, where it can provide greater opportunities for growth, but growth may be jobless. By focusing on improved economic policies and the adoption of advanced technology and a focus on skilled workers.

Clearly, the impact of globalization on women's economic status in the Arab region and is reflected through the distribution of women's labour force, as shown in table (4), Limited women's work in economic sectors and reveals the fact that the deterioration of women's economic security in the Arab region, in addition to the high level of unemployment. Arab women are limited in the following sectors: agriculture - industry and services. According to a report by the International Labor Organization in 2008. Which confirms that the proportion of women, the presence of the total labor force in the agricultural sector in the two Middle East and North Africa in 1997 by 28.4% in the Middle East. And 31.4% in North Africa and the data indicate an increase in 2007 as it increased the proportion of women working in the Middle East region to 31% and by 32.6% in North Africa. These figures reveal the high % age of women employed in the agricultural sector between 1997 and 2007, and this means a significant and serious deterioration in the situation of Arab women in the labor market in general.

Over these years because of lack of employment opportunities available to them in other sectors on the one hand .on the other hand. the sector that does not require highly skilled market is the sector of polarized in the coming years if it does not qualify and empower women to improve the employment opportunities it. The presence of women in this sector and a high proportion amounting to more than two-thirds of the labour force, especially for women in some Arab countries such as Yemen, leading to increased poverty among women because of low productivity and returns in this sector. As well as in Egypt, according to the data has been the application of the law of agrarian reform for the implementation of to October 1997, which allows owners, let out tenants from their land. Which would result in additional manpower in rural and low-income families working in agriculture, this led to the payment of many of the workers and employees to the labour market. Research has shown that employment sample was punishable in 1991 for agricultural labour employment, including unpaid. And employment in the informal sector in 1988, that approximately 67% of female employment is concentrated in the agriculture sector compared with 35.8% of men. The same studies also showed that the proportion of the contribution of women workers in the agriculture sector is 50.7% against 49.2% in 1988. viii

In the industrial sector, the proportion of women workers in 1997 in the Middle East, about 20%, in the area of North Africa are 19.1%. While this % age declined in 2007 to 18.8% in the Middle East, and by 15.2% in the North Africa. These data indicate that the proportion of women working as Arab countries is very weak, the manufacturers of the different sectors of the former. In this sector, according to data provided by the International Labor Organization, the presence of Arab women in this sector is very weak, which show the decline in the health of women in these fields, especially private sectors and that it is more integrated and open world markets and, therefore, used new technology to replace skilled labor of others and at the same time increasing demand for the employment of highly skilled male. Not turn in this regression reveals the continuing decline in capacity and skills, weak education and training among women, the kind of education that you get, lack of a shift in the type of education obtained by the female, making women in this sector is steadily declining, especially as it will not cease to keep up with the events of the technical means of

production in order to remain able to compete in global markets.In Egypt, for example, works more than 21 5% of the workforce in the manufacturing of women compared with 78% of men in 1991.^{ix} The response to the cancellation of the public enterprise sector, also in Egypt, for example, to influence the industrial companies which relate to. In 1991 the data show that the number of workers in Egypt,the industries sector reached 679.3 thousand, including 84.7 thousand of women, or 12%. The focus of women's employment in the public enterprise sector, industrial yarn, textile and garment industries, 43% and 14% of food, medicines and medical supplies, 13%; Where the lower employment rate of women, there are in the sectors of mining and 3% refractory and metallurgical industries 4%. It is noted from the data in Egypt that the number of women employed in the manufacturing industry, and whenever decreased 7% in the last five years.^x

| | Agriculture sector | | | | industrial sector | | | | service sector | | | |
|-------------------------|--------------------|----------|-----------|------|-------------------|------|------|------|----------------|------|------|------|
| | 1997 2007 | | 1997 2007 | | 1997 | | 2007 | | | | | |
| | F | М | F | М | F | М | F | М | F | М | F | М |
| World | 43.5 | 40 | 36.1 | 34 | 16.8 | 24 | 17.6 | 25.6 | 34.6 | 36.1 | 46.3 | 40.4 |
| Development Economic | 5.3 | 6.7 | 3.2 | 4.6 | 16.7 | 37.1 | 12.5 | 34.3 | 78.1 | 56.1 | 84.3 | 61.1 |
| East Asia | 51.9 | 44. 6 | 41 | 36.3 | 22.8 | 25.6 | 25.5 | 28 | 25.3 | 29.8 | 33.5 | 35.7 |
| Middle East | 28.4 | 19. 6 | 31 | 12.5 | 20 | 27.1 | 18.8 | 28 | 51.6 | 53.3 | 50.2 | 59.4 |
| North Africa | 31.2 | 36. 6 | 32.6 | 32.9 | 19.1 | 20.1 | 15.2 | 22.3 | 49.7 | 43.3 | 50.2 | 44.8 |

| Table | (4) Female and Male Employment by Sector, as share total |
|-------|--|
| | employment |

Source: International Labor Organization (ILO) (2008

With regard to the service sector, women in this sector, as indicated by the data, the % age of women employed in the service sector in the Middle East increased by 51.2% and by 49.7% in North Africa in 1997. While in 2007 the proportion of workers in the Middle East increased by 50.2% in the region of North Africa by 52.2%. It can say

here that in the service sector, there have been some slight improvement with respect to the employment of women as affected for most of the work force a women's, and this sector of low productivity and returns in most Arab countries, which means that the promotion of the economic situation of Arab women working in this sector. In this service sector, particularly with regard to education and health have lost more than 40% of women in Libya, Tunisia and Egypt, their jobs as a result the process of reduction carried out by such States. There is another issue affecting the work of Globalization on Arab women, as a result of the government bureaucracy to reduce the loss of many of the States of its functions under the privatisation. In Egypt, for example, has lost approximately 31% of the total working system of government function, more than 981 thousand women.^{xi}

Regarding the employment status of women in the Arab region as published by the ILO in March 2008. Show that women's share of total employment Arabia witnessed a rise in paid jobs between 1997 and 2007, where women's share is close to share of men. But that does not mean to narrow the gender gap convergence rates paid jobs given to gender, and if we take into account the type of job and the importance and the wages paid for those posts.^{xii} According to World Bank estimates there are approximately 80% of Arab women in senior positions at the entry level, because of illiteracy and poor education and training, which means low wages and the deterioration of their economic status. As regards the share of Arab women in thevulnerable employment are high compared to men because of the limited employment opportunities available to them, where a large proportion of women employed in the informal sector.

From other point there is a negative effect of globalization and economic transformations on the status of women. Globalization converted the world into a factory and market opted for a woman to be the mediator between them, rather than through intellectual potential and capabilities professional, but by employing the body to ensure the continued rise of consumer desires by promoting goods and products, reducing a woman's body into an economic unit is working on maximizing profit and bring more interest, so dehydrogenase sainthood for a woman's body by neutralizing the moral content of the function of women, there are jobs was shameful and peripheral became acceptable, even desirable, and then women became known often and fields through the body and what the limits provided by the privileges.^{xiii}

Conclusion

From the foregoing it can be seen that the level of labour force participations rates was lower for Arab women than for Arab men. It was also explained that levels of unemployment for Arab women are higher even if they are educated, when compared with levels for men in the Middle East and North Africa regions of the Arab World. The impact of Globalization on women's economic status in the Arab region is reflected through the distribution of the women's labour force. The primary point to note is that, in addition to their high levels of unemployment, Arab women have limited access to jobs in the economic sectors. The female labour force is largely restricted to jobs in such sectors as agriculture, industry, and services, which do not require employees with advanced qualifications and therefore do need workers who are highly-skilled. In fact according to prevailing social norms Arab countries prefer to employ men rather than women, even if women are better educated and qualified than men.

It can be concluded that the Arab environment represents another reason behind the impact of Globalization on women's economic status, since Globalization has not met any of the aspirations among Arab women for improvements in their economic status. This has been due to a combination of factors such as the weak capacity of education, training and social transformation, combined with deterioration in the economic position of the countries that have opted to join the international financial system.

Notes

ⁱ International Labour Organization 2008, *Global Employment for Women* (Geneva, March 2008).

ⁱⁱ See the World Bank (2005), *World Development Indicators*, Washington, DC: Word Bank, p.7

ⁱⁱⁱ For more details see Arab Human Development Report, 2005, p 88.

^{iv} See World Bank (2007), Middle East and North Africa Gender overview , Washington, DC: Word Bank.p 6.

^v Taboli, Mohammad Abdul Hameed, Ibrahim Ali Al jiar, "Technical and vocational education, and the development of Libyan women in the labour market, *Journal of Economic Research*, vol XVIII, No. 1, December 2007, p.174.

^{vi}Secretariat of the Population, *Labour Force Planning, Wages and Productivity in Libya 1989.* Published by the National Authority for Information, which also documented the final results of the general population census of 1995 in the *Economic and Social Survery 2002*

^{vii} Taboli, Al jiar, "Technical and vocational education and the development of Libyan women ...", op.cit., p.175.

^{viii} Hatata, Sheriff, "Globalization and women, the international division of labor", in globalization and societal transformations in teh Arab World, ,Oya publication, Arab research Center, 2006, p.270.

^{ix} Ibid.

^x Ibid.

^{xi} Ibid.

^{xii}Arab women in the Labormaket by ulashtewee- Women budget forum- Feb 2008.

xiiihttp://www.aljazeera.net/programs/forwomenalone/2004/6/4/