Melaka Health Challenge: A 6-months Weight Reduction Programme Among Healthcare Workers In Melaka

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INTRODUCTION

Prevalence Of Overweight & Obesity

Overweight and obesity are growing public health problems that have become global epidemics. 39% (1.9 billion adults) were overweight and 13% (650 million) were obese where overweight and obesity kills more people.

WORLDWIDE Overweight & Obesity Prevalence

Overweight & Obesity Prevalence

Overweight

Obese

NHMS 2006

Malaysia

Melaka

29.1%

14.5%

31.1%

17.4%

NHMS 2011

Malaysia

Melaka

29.4%

15.1%

33.7%

29.4%

NHMS 2015

Malaysia

Melaka

30%

17.7%

33.6%

36%
INTRODUCTION

- Numerous reports related to overweight and obesity:
  - risk factor for non-communicable diseases such as cardiovascular disease, Type II Diabetes Mellitus, Hypertension, Dyslipidemia and certain types of cancer which can further enhance the burden of diseases and the mortality rate (3,4)
  - reduce productivity of employees 5
  - recorded more occupational injuries and accidents 6

- Thus, the main aim of this study is to investigate the impact of Melaka Health Challenge Programme as a weight reduction programme on anthropometry, biochemistry and fitness level among healthcare workers of Melaka State Health Department and improving their overall health status.
OBJECTIVE OF THE STUDY

1. To determine the demographic characteristic among participants
2. To evaluate the effectiveness of a weight reduction programme among healthcare workers in the Melaka State Health Department
   - 80% remains in the program
   - 30 % had weight reduction 5 – 10% of current body weight
   - All participants had weight loss once enter the programme.
### MATERIALS & METHODOLOGY

<table>
<thead>
<tr>
<th>Study Design</th>
<th>A Cross-sectional study</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study Frame</td>
<td>March 2017 – October 2017</td>
</tr>
</tbody>
</table>
| Study Population   | Fulfilled the inclusion criteria:  
  ▪ male or female  
  ▪ overweight or obese, defined as BMI ≥ 27.5 kg/m²  
  ▪ working primarily with Melaka State Health Department.  
  ▪ nominated by the respective heads of departments.  
  ▪ participants need to confirm their willingness, consent form was signed by each participant and countersigned by Head Of Department (HOD)  
  ▪ self-reported chronic medical conditions were excluded. |
## Materials & Methodology

### Data Collection
A standardized data collection form was used to gather the information on the demographic characteristics.

### Interventions
Six sessions were conducted and participants were required to come at least four out of six sessions at the state level. The sessions included the 3 elements:

- **Healthy Eating**: "Quarter-Quarter-Half" meal by dietitian or nutritionist was called to give a 1-hour lecture session and participants were brought to supermarket for "Healthy Supermarket Travel" session.
- **Physical Activity and Fitness Assessment**: Conducted by physiotherapists.
- **Self Sustainable Motivation**: By counselor or psychologist officer.
### Measurements

All participants underwent baseline measurement of anthropometries, fitness assessment and blood investigations. The anthropometries were repeated monthly.

- **Body weight** calculated by using the TBF-300A Total Body Composition Analyzer (Tanita Corporation of America, Illinois).
- **Height** measured by using the Body Meter Model 208 (Seca, Hamburg) to compute their BMI.
- To increase the accuracy, the participants were weighed in light clothing without shoes and all personal items.
- The **waist circumference** was measured at midpoint inferior of the last rib and the crest of the ileum by using the Girth Measuring Tape Model 203 (Seca, Hamburg).
### MATERIALS & METHODOLOGY

**Assessment**

A logbook given to all participants as to record their anthropometries, physical activity done by themselves at home and their nutritional diary.

**Statistical Analysis**

- All the data collected were managed and analyzed using the SPSS 22.0 Statistics for Windows version.
- The categorical variables were described using frequencies and percentages.
- While the numerical variables were summarized using means and standard deviations (SDs).
- Paired t-tests were used to detect the differences between the baseline and post-intervention measurements.
- All the analyses were considered statistically significant if $P<0.05$. 

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23rd Joint Malaysia Singapore Nursing Conference 2018
RESULTS
<table>
<thead>
<tr>
<th>Results</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Male</td>
<td>35</td>
<td>29</td>
</tr>
<tr>
<td>Female</td>
<td>86</td>
<td>71</td>
</tr>
<tr>
<td><strong>Age group (years)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 – 29</td>
<td>13</td>
<td>10.7</td>
</tr>
<tr>
<td>30 – 39</td>
<td>72</td>
<td>59.5</td>
</tr>
<tr>
<td>40 – 49</td>
<td>35</td>
<td>28.9</td>
</tr>
<tr>
<td>50 – 59</td>
<td>1</td>
<td>0.9</td>
</tr>
<tr>
<td><strong>Profession</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nurse</td>
<td>45</td>
<td>37.2</td>
</tr>
<tr>
<td>Doctor</td>
<td>5</td>
<td>4.1</td>
</tr>
<tr>
<td>Allied Health</td>
<td>71</td>
<td>58.7</td>
</tr>
<tr>
<td><strong>Body Mass Index (BMI) Classification (kg/m2)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>27.5 – 34.9</td>
<td>70</td>
<td>57.9</td>
</tr>
<tr>
<td>35.0 – 39.9</td>
<td>28</td>
<td>23.1</td>
</tr>
<tr>
<td>40 and above</td>
<td>23</td>
<td>19.0</td>
</tr>
</tbody>
</table>

Table 1: Baseline characteristics of participants (n=121).
## RESULTS

Table 2: Baseline parameters of participants (n=121).

<table>
<thead>
<tr>
<th>Variable (n = 121)</th>
<th>Mean ± Std. Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (yrs)</td>
<td>36.4 ± 5.56</td>
</tr>
<tr>
<td>Height (m)</td>
<td>1.6 ± 0.07</td>
</tr>
<tr>
<td>Pre weight (kg)</td>
<td>88.9 ± 17.42</td>
</tr>
<tr>
<td>Pre BMI (kg/m(^2))</td>
<td>35.2 ± 5.42</td>
</tr>
<tr>
<td>Pre WC (cm)</td>
<td>101.3 ± 14.92</td>
</tr>
<tr>
<td>Pre SBP (mmHg)</td>
<td>128.7 ± 15.85</td>
</tr>
<tr>
<td>Pre DBP (mmHg)</td>
<td>84.9 ± 10.47</td>
</tr>
<tr>
<td>Pre FBS (mmol/L)</td>
<td>5.74 ± 2.24</td>
</tr>
<tr>
<td>Pre TC (mmol/L)</td>
<td>5.14 ± 0.84</td>
</tr>
</tbody>
</table>

Data are mean ± SD, SBP = Systolic blood pressure, DBP = Diastolic blood pressure, BMI = Body mass index, WC = waist circumference, FBS = Fasting Blood Sugar, TC = Total Cholesterol
RESULTS

Table 3: Distribution of participants by weight reduction in percentage

<table>
<thead>
<tr>
<th>Weight reduction in percentage</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt; 5</td>
<td>66</td>
<td>54.5</td>
</tr>
<tr>
<td>5 – 10</td>
<td>17</td>
<td>14.0</td>
</tr>
<tr>
<td>&gt; 10</td>
<td>12</td>
<td>9.9</td>
</tr>
<tr>
<td>No changes / increased weight</td>
<td>26</td>
<td>21.6</td>
</tr>
<tr>
<td>Total</td>
<td>121</td>
<td>100</td>
</tr>
</tbody>
</table>

Out of 139 registered,
• 121 (87%) were completed the Melaka Health Challenge programme
• 29 (23.9%) had weight reduction 5 -10 or > 10% from current body weight
• 95 (78.5%) had weight reduction once enter the Melaka Health Challenge Programme
RESULTS

Table 4: Changes of anthropometry and biochemistry following the programme among the participants (n=121).

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean difference</th>
<th>SD</th>
<th>95% CI of the difference</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lower</td>
<td>Upper</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight</td>
<td>2.99</td>
<td>4.68</td>
<td>2.145</td>
<td>3.832</td>
</tr>
<tr>
<td>BMI</td>
<td>1.52</td>
<td>3.96</td>
<td>0.803</td>
<td>2.230</td>
</tr>
<tr>
<td>WC</td>
<td>4.44</td>
<td>16.98</td>
<td>1.301</td>
<td>7.576</td>
</tr>
<tr>
<td>SBP</td>
<td>6.57</td>
<td>12.21</td>
<td>4.37</td>
<td>8.77</td>
</tr>
<tr>
<td>DBP</td>
<td>4.28</td>
<td>8.86</td>
<td>2.68</td>
<td>5.88</td>
</tr>
<tr>
<td>FBS</td>
<td>0.18</td>
<td>1.29</td>
<td>-0.11</td>
<td>0.48</td>
</tr>
<tr>
<td>TC</td>
<td>0.10</td>
<td>0.67</td>
<td>-0.07</td>
<td>0.25</td>
</tr>
</tbody>
</table>

The physical fitness assessment and that been measured were showed improvement in the push-ups test (40.5%), 3-mins YMCA steps test post-exercise (40.5%), sit and reach box test (29.8%) and the partial curl-up test (23.1%) among participants.
DISCUSSION

- Overall, the programme led to a considerable reduction in body weight, BMI, waist circumference and fitness level among the participants. This was largely due to their lifestyle changes, both assisted and self-motivated, during the programme, including increased physical exercise and diet control.

- The magnitudes of reduction of both the body weight and BMI were also found which assessed the effectiveness of interventions on overweight and obese employees.
DISCUSSION

- This is most likely due to the generally higher health awareness and better health-related knowledge among the healthcare providers, particularly physicians and nurses in clinical settings.

- However, the participants were still unable to achieve the targeted weight reduction. Therefore, besides behavioral interventions, other evidence-based approaches, such as intensive counseling, worksite environmental changes and policy strategies, could be incorporated into the existing programme to optimize its effectiveness.
<table>
<thead>
<tr>
<th>STRENGTH</th>
<th>LIMITATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Involvement of healthcare workers and high commitment from participants and HOD in completing the weight reduction programme</td>
<td>The absence of a control group could affect its internal validity</td>
</tr>
<tr>
<td>The first cross-sectional study been held in Malaysia to determine the benefits of weight reduction programme among healthcare worker.</td>
<td>Focused merely on the immediate changes and therefore does not provide specific information on the actual behavioral changes of the participants, as well as on the long-term effects of the programme.</td>
</tr>
<tr>
<td>The changes of the targeted parameters is significant, suggesting that the existing weight-reduction programme is effective</td>
<td></td>
</tr>
</tbody>
</table>
CONCLUSION

- This study showed the effectiveness of a 6-months Melaka Health Challenge Programme as weight reduction programme given an impact on anthropometry, biochemistry and fitness.
- This programme is a successful weight management and benefited healthcare workers at Melaka State Health Department.
- Thus, the programme is recommended to be applied and continued to all health facilities.
RECOMMENDATIONS

- As obesity among healthcare employees is increasingly prevalent in Malaysia, further research is warranted to confirm the durability of health behaviors of the participants following the programme, thereby providing stronger evidence for its expansion to other public health centers.

- Thus, the next step would be in MHCP 2018 where a follow-up of the same participants would be conducted, thus determining whether there are further improvement in parameters that been measured earlier.
The authors wish to thank all participants for their full cooperation and commitment during the study.

A deepest gratitude was conveyed to all the Directors of Hospitals and Health District Offices for their interest in investing in this study and supports in allowing the participants to attend the sessions.

Special thanks to the team from Melaka State Health Department, namely psychologist, physiotherapist and nutritionist and others involved in running the intervention activities during the study.
REFERENCES

PICTURES OF ACTIVITIES / INTERVERSION
1ST SESSION – 2 MAC 2017

• Attendance: 103 participants
2ND SESSION – 5 APRIL 2017

Attendance: 126 participants
3rd Session – 26 April 2017

Attendance: 103 participants
4TH SESSION – 25 MAY 2017

Attendance: 105 participants
5TH SESSION – 28 JULY 2017

Attendance: 10 participants
6TH SESSION – 6 OCT 2017

Attendance: 105 participants
THANK YOU