Promoting Patients with Diabetes managing themselves using Application

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INTRODUCTION

• Prevalence of diabetes has increased around 1.5 times last 10 years in Republic of Korea. Among diabetes patients, 65.8% are aware of their condition, 61.4% are undergoing treatment, and only 24.5% are controlling blood glucose level as HbA1c under 6.5%.
• For glycemic control, it's important to make patients practice daily healthy behavior.
• 50's represent the largest group as 30% among men. It's necessary to collaborate with company to promote men's glycemic control.

METHODS

• We tried a two month pilot program using application called Healthibuddy with a company.
• We checked weight, body mass index, body composition, fasting glucose, glycated hemoglobin, blood cholesterol.
• Healthibuddy made participants to record daily diet and physical activity. It provided lifelog with blood glucose target using continuous glucose monitoring. It also provided individualized report for diet and physical activity solution, weekly status, pre and post comparison.

RESULTS

• Participants show statistically significant decrease in weight and body mass index. Body composition changes with decrease in fat and muscle.
• Blood glucose are controlled with decrease of HbA1c from 7.97% to 7.53% and decrease in fasting glucose from 140 mg/dl to 136 mg/dl but these are not statistically significant.
• Dietary intake shows decrease in carbohydrate, fat and increase in protein. Participants also become to take vegetables more.
• Participants have used application 71.7% and reach blood glucose level within target range to 61.4%. Satisfaction score is 4.75 of 5.0, intention to use is 91.7%, and recommendation reaches 100%.

CONCLUSION

• Participants use application helping healthy behavior well even in their workplace.
• They favor taking lifelog, continuous glucose monitoring, and practicing healthy behavior through mission.
• They also show high satisfaction, strong intention to use and recommendation.
• This study shows availability of application helping diabetic patients for better lifestyle through mission system and using glucose monitoring, lifelog. It can be useful especially for men in workplace.

Table 1. Characteristics and changes in diabetes body and blood profile

Characteristics	Pre	Post	*p* value
Age	51.17 ± 10.40 years	-	
Duration of illness	9.91 ± 6.91 years	-	
Body & Blood Profile	**Pre**	**Post**	***p* value**
Weight	79.73 ± 9.84 Kg	77.37 ± 12.22 Kg	0.0313
Body mass index	26.65 ± 3.62	25.61 ± 4.34	0.0313
Body Composition			
fat	24.88 ± 6.13 %	23.10 ± 6.37 %	0.7813
muscle	54.33 ± 3.76 %	53.74 ± 4.22 %	0.0313
Blood glucose			
HbA1c	7.97 ± 1.86 %	7.53 ± 1.59 %	0.1577
fasting glucose	140 ± 34.57 mg/dl	136.17 ± 49.16 mg/dl	0.2935
Blood cholesterol			
total cholesterol	186.92 ± 42.53 mg/dl	176.75 ± 50.58 mg/dl	0.6089
low density lipoprotein cholesterol	111.67 ± 36.34 mg/dl	102.83 ± 40.00 mg/dl	0.4697
triglyceride	186.50 ± 101.41 mg/dl	192.08 ± 235.04 mg/dl	0.0640
high density lipoprotein cholesterol	52.83 ± 12.78 mg/dl	54.17 ± 14.76 mg/dl	0.5898

Table 2. Patterns of Dietary intake

Dietary Intake	Pre	Post	*p* value
Basic dietary intake			
carbohydrate	56.87 ± 8.05 %	55.04 ± 5.43 %	0.1094
protein	25.80 ± 5.47 %	27.22 ± 3.69 %	0.1563
fat	24.88 ± 6.13 %	23.10 ± 6.37 %	0.7813
Specific dietary intake			
rice	33.56 ± 9.70 %	35.63 ± 2.88 %	1.0000
vegetable	32.11 ±11.16 %	34.75 ± 8.88 %	0.8125
meat	30.88 ± 8.18 %	29.63 ± 7.91 %	1.0000

Table 3. Use of application and satisfaction, intention to use, recommendation

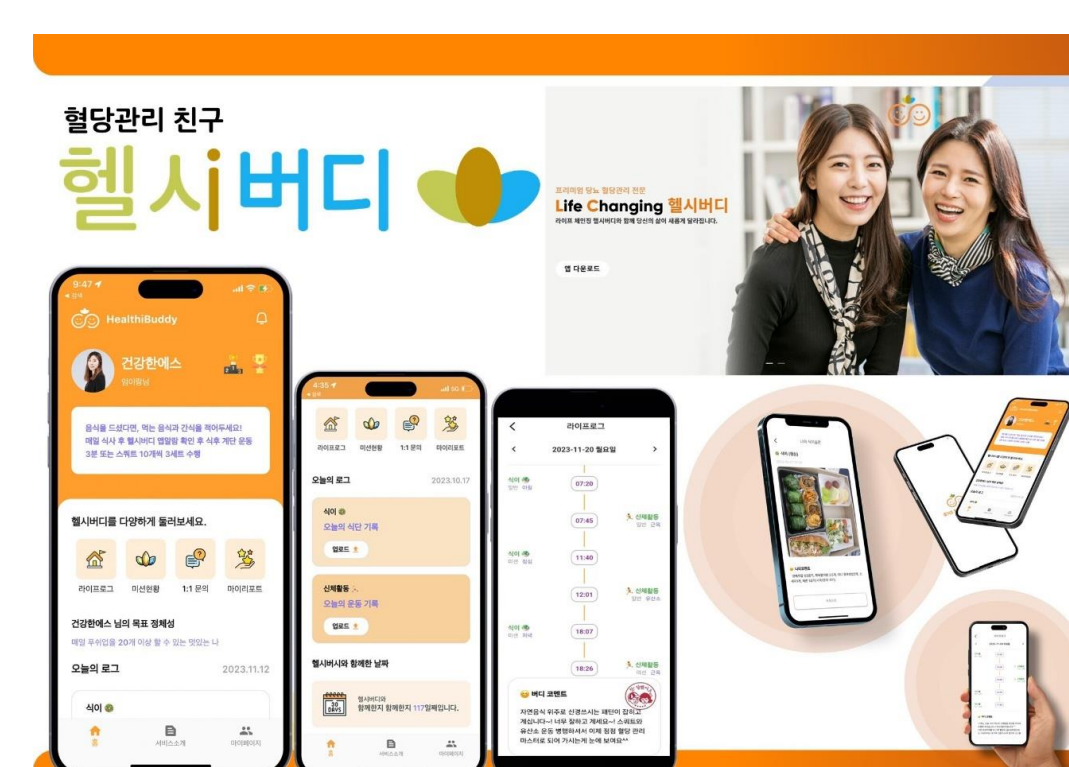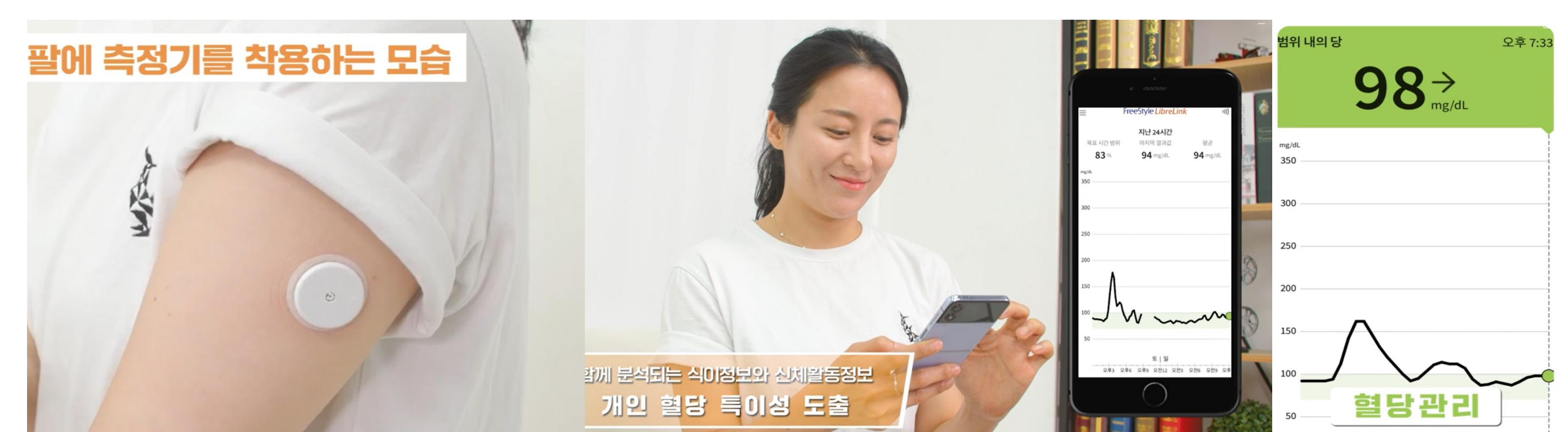| Use of application	Response
Sensing time	71.67 ± 21.72 %
Target range	61.41 ± 28.57 %
Satisfaction	**Response**
Satisfaction	4.75 ± 0.45
Intention to use	91.67 ± 28.87 %
Recommendation	100 %

Figure 1. Intro of Healthibuddy

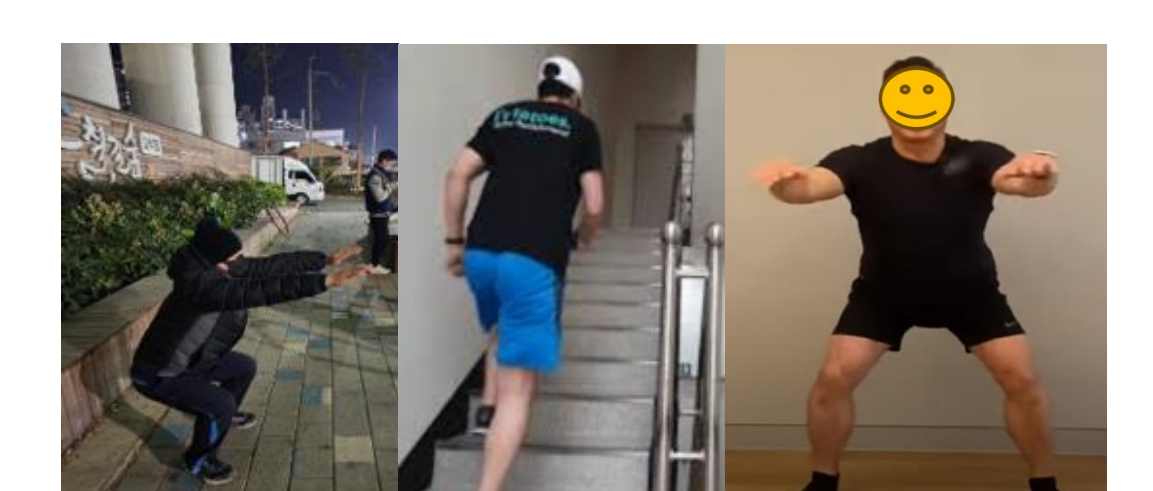Figure 2. Blood glucose monitoring with diet and activity

Figure 3. Dietary change through Healthibuddy

Figure 4. Physical Activity with mission