The effectiveness of Information-Motivation-Behavioural skills model-based Diabetes Self-Management Education among patients with type 2 diabetes in Jordan (IMB-DSME)

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Outlines

- Background and diabetes complications.

- Diabetes Self-Management Education (DSME).

- Systematic Reviews and IMB model.

- Study Purpose and Methods.

- Study Implication.

Background

- Diabetes type 2 characterized by high blood glucose levels, resulting from deficiency in insulin secretion or increase insulin resistance.

- 177 million diagnosed with diabetes at 2000, expected to increase to at least 300 million by 2025.

- 4 million deaths per year are related to diabetes; majority are from cardiovascular complications.
- Will be the 7th leading cause of death at 2030.

6/1/2017   1- WHO (2011).**Non-communicable diseases: country profiles** [Online]. World Health Organization. Available at: http://www.who.int/nmh/publications/ncd_profiles_report.pdf [Accessed 15 May 2015].

Diabetes complications:

- Hyperglycemia is one of the leading causes of microvascular and macro-vascular complications.

- Medications showed an improvement in glucose level further with experiencing side effects such as hypoglycaemia and weight gain.

- United Kingdom Prospective Diabetes Study (UKPDS) showed that glycaemic control of HbA1c <7 is highly correlated with lowering incidence microvascular complications.

STRATTON, I. M., ADLER, A. I., NEIL, H. A., MATTHEWS, D. R., MANLEY, S. E., CULL, C. A., HADDEN, D., TURNER, R. C. & HOLMAN, R. R. (2000a) Association of glycaemia with macro-vascular and microvascular complications of type 2 diabetes (UKPDS 35): prospective observational study. **BMJ** 321 (7258): pp.405-12.

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Diabetes in Jordan:

- In 2008, one million Jordanians diagnosed with type 2 diabetes, prevalence of diabetes increased by 31.5% in 10 years period.

- Deaths related to diabetes increased from 1% at 2002 to 7% at 2010.

- More than half million patients have (HbA1c >7.5) due to many factors such as a sedentary lifestyle and poor medications management.

1- AJLOUNI, K., KHADER, Y. S., BATIEHA, A., AJLOUNI, H. & EL-KHATEEB, M. (2008) An increase in prevalence of diabetes mellitus in Jordan over 10 years. J Diabetes Complications 22 (5): pp.317-24.
2- KHATTAB, M., KHADER, Y. S., AL-KHAWALDEH, A. & AJLOUNI, K. (2010) Factors associated with poor glycemic control among patients with type 2 diabetes. J Diabetes Complications 24 (2): pp.84-9.

Diabetes Self-Management Education (DSME):

- Performing diabetes self-management activities found to explain 90-98% of variance in glycaemic control.

- Patients are encouraged to self-control their glucose level, which is best to be achieved through patients self-management education.

- DSME defined as an ongoing process provides appropriate knowledge and skills, identifies patients needs and goals to enhance performing self-care behaviours, problem solving and decision making.

1- O'CONNOR, P. J., RUSH, W. A., DAVIDSON, G., LOUIS, T. A., SOLBERG, L. I., CRAIN, L., JOHNSON, P. E. & WHITEBIRD, R. R. (2008) Variation in quality of diabetes care at the levels of patient, physician, and clinic. Preventing chronic disease 5 (1): pp.A15.
2- National standards for diabetes self-management education and support. Diabetes Care 37 Suppl 1: pp.S144-53.

Developing DSME:

- Diabetes care is a complex process and necessitate a complex intervention to address several components during diabetes management.

- UK Medical Research Council (MRC) stated that complex interventions need to be formulated in a standardized way of design and evaluation.

- Starts by identifying an appropriate theoretical framework that correlates active ingredients properly to cause a change.

CAMPBELL, M., FITZPATRICK, R., HAINES, A., KINMONTH, A. L., SANDERCOCK, P., SPIEGELHALTER, D. & TYRER, P. (2000) Framework for design and evaluation of complex interventions to improve health. BMJ 321 (7262): pp.694-6.

Systematic reviews and meta-analysis of RCTs conducted between 2001 and 2015 recommended the following:

- Didactic interventions focused only on providing knowledge showed a significant improvement on patients' information and metabolic outcomes within less than six months.

- As a result, they recommended that educational programs should target psychological factors to enhance their abilities to change their behaviour.

6/1/2017   NORRIS, S. L., ENGELGAU, M. M. & NARAYAN, K. M. V. (2001) Effectiveness of self management training in type 2 diabetes - A systematic review of randomized controlled trials. Diabetes Care 24 (3): pp.561-587.

Cont.

- Qualitative systematic review stated that behavioural changes strategies were more effective than didactic programs.

- They concluded that behavioural change theories have a vital role and quality of life outcomes should be a major concern.

- Few studies based their intervention on behavioural change theories and data are insufficient to choose the most effective theory.

CLEMENT, S. (1995) Diabetes self-management education. Diabetes Care 18 (8): pp.1204-14.
KNIGHT, K. M., DORNAN, T. & BUNDY, C. (2006) The diabetes educator: Trying hard, but must concentrate more on behaviour. Diabetic Medicine 23 (5): pp.485-501.
BORGERMANS, L. A., GODERIS, G., OUWENS, M., WENS, J., HEYRMAN, J. & GROL, R. P. (2008) Diversity in diabetes care programmes and views on high quality diabetes care: are we in need of a standardized framework? Int J Integr Care 8: pp.e07.

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- A review of lifestyle change strategies among patients with type 2 diabetes highlighted the importance of integrating behavioural change strategies within educational programs.

- The noticeable absence of individualized educational delivery that may guarantee an optimal effectiveness.

DUBE, L., VAN DEN BROUCKE, S., HOUSIAUX, M., DHOORE, W. & RENDALL-MKOSI, K. (2015) Type 2 Diabetes Self-management Education Programs in High and Low Mortality Developing Countries: A Systematic Review. Diabetes Educ 41 (1): pp.69-85.
GREAVES, C. J., SHEPPARD, K. E., ABRAHAM, C., HARDEMAN, W., RODEN, M., EVANS, P. H., SCHWARZ, P. & GRP, I. S. (2011) Systematic review of reviews of intervention components associated with increased effectiveness in dietary and physical activity interventions. Bmc Public Health 11.

Cont.

- Educational programs should be established on behavioural change theories as well as tailored to the cultural, socioeconomic, religious aspects and literacy level.

- Finally, barriers in diabetes self-care behaviours were found to be consistent with Information-Motivation-Behavioural skills (IMB) Model of behavioural change.
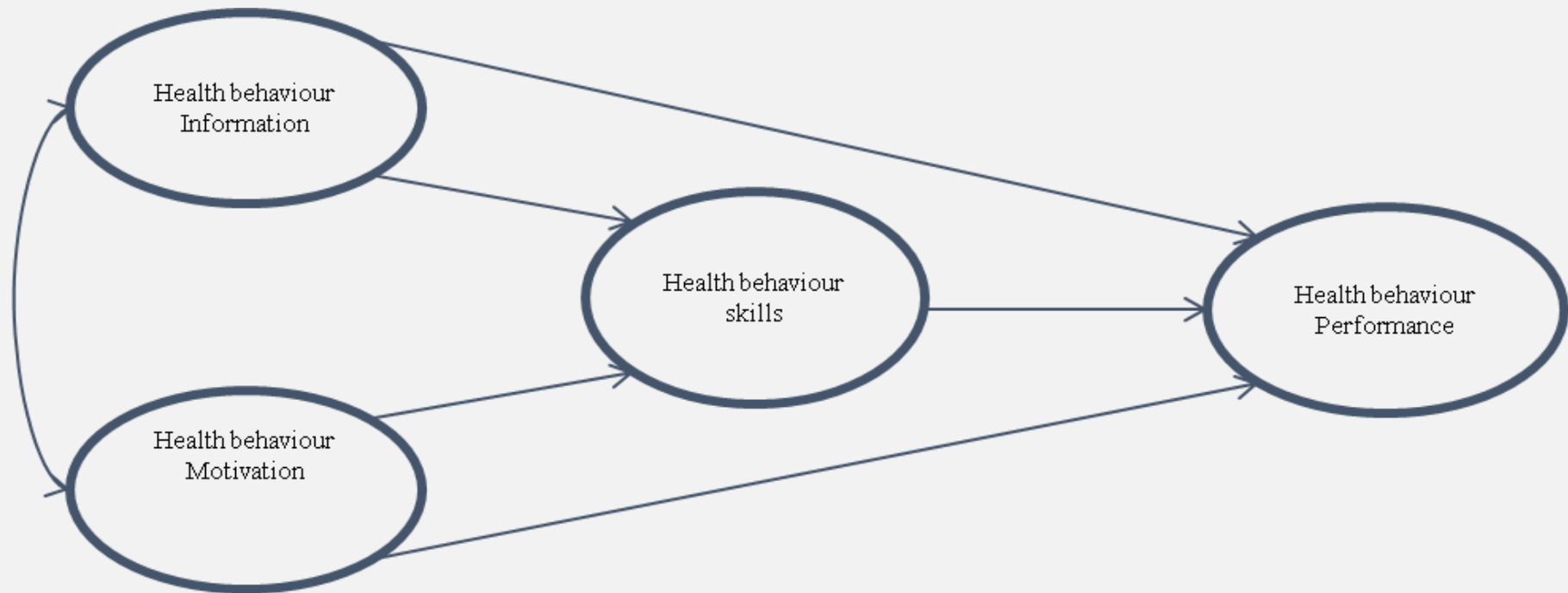
CARO-BAUTISTA, J., MARTIN-SANTOS, F. J. & MORALES-ASENCIO, J. M. (2014) Systematic review of the psychometric properties and theoretical grounding of instruments evaluating self-care in people with type 2 diabetes mellitus. J Adv Nurs 70 (6): pp.1209-27.

Research Gap for DSME and the need for:

- Theoretically based intervention such as behavioural change theory.

- Individually tailored, patient-centred as well as suites busy clinic.

- Frequent reinforcement of educational messages more than single session.

IMB model:

- William and Jeffery, Fisher both used concepts of models and theories to construct The IMB skills model.

- The model was critically constructed based on analysing previous interventions and addressing limitations of the theories that have been used among clients with HIV risk.

FISHER, W. A. & FISHER, J. D. (1993) A general social psychological model for changing AIDS risk behavior. In: REEDER, J. B. P. G. D. (ed.) The social psychology of HIV infection. Hillsdale, NJ, England: Lawrence Erlbaum Associates, Inc, 127-153.

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Why IMB model:

1- Simple theoretical framework for complex behaviours.

2- Osborn et al. It needs 11.8 hours of DSME to decrease HbA1c to a level that requires one 1.5 hours of using IMB model in DSME.

3- Chang et al (2014), systematically reviewed the IMB model-based behavioural interventions. They found that effects of IMB model persisted up to 12 months in studies followed up patients for 12 months.

6/1/2017

CHANG, S. J., CHOI, S., KIM, S. A. & SONG, M. (2014) Intervention Strategies Based on Information-Motivation-Behavioral Skills Model for Health Behavior Change: A Systematic Review. Asian Nursing Research 8 (3): pp.172-181.
OSBORN, C. Y., AMICO, K. R., CRUZ, N., O'CONNELL, A. A., PEREZ-ESCAMILLA, R., KALICHMAN, S. C., WOLF, S. A. & FISHER, J. D. (2010a) A brief culturally tailored intervention for Puerto Ricans with type 2 diabetes. Health Educ Behav 37 (6): pp.849-62.

Research purpose and setting:

- The purpose of the study is to examine the effectiveness of IMB model-based DSME among Jordanian patients with T2DM using small scale RCT approach.

- Data will be collected from two sites: Prince Hamzeh hospital and Jordan University hospital.

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Research objectives:

Primary

To evaluate the effectiveness of DSME on performing three self-care behaviours: Diet, physical exercise and medications management.

Secondary

To evaluate the effectiveness of DSME on glycaemic level (HbA1c), quality of life, weight and blood pressure, diabetes self-management knowledge, motivation and self-efficacy.

First Phase:

- Researcher will conduct a parallel on 1:1 average RCT to evaluate the impact of the IMB model-based intervention on the outcomes by measuring variables numerically at baseline (before), 3 months (after) and 6 months among 230 participants.

- Individually tailored informational and motivational package will be delivered starting with face to face session (first visit) in the outpatient clinic and by weekly phone calls for 12 weeks during the first 3 months.

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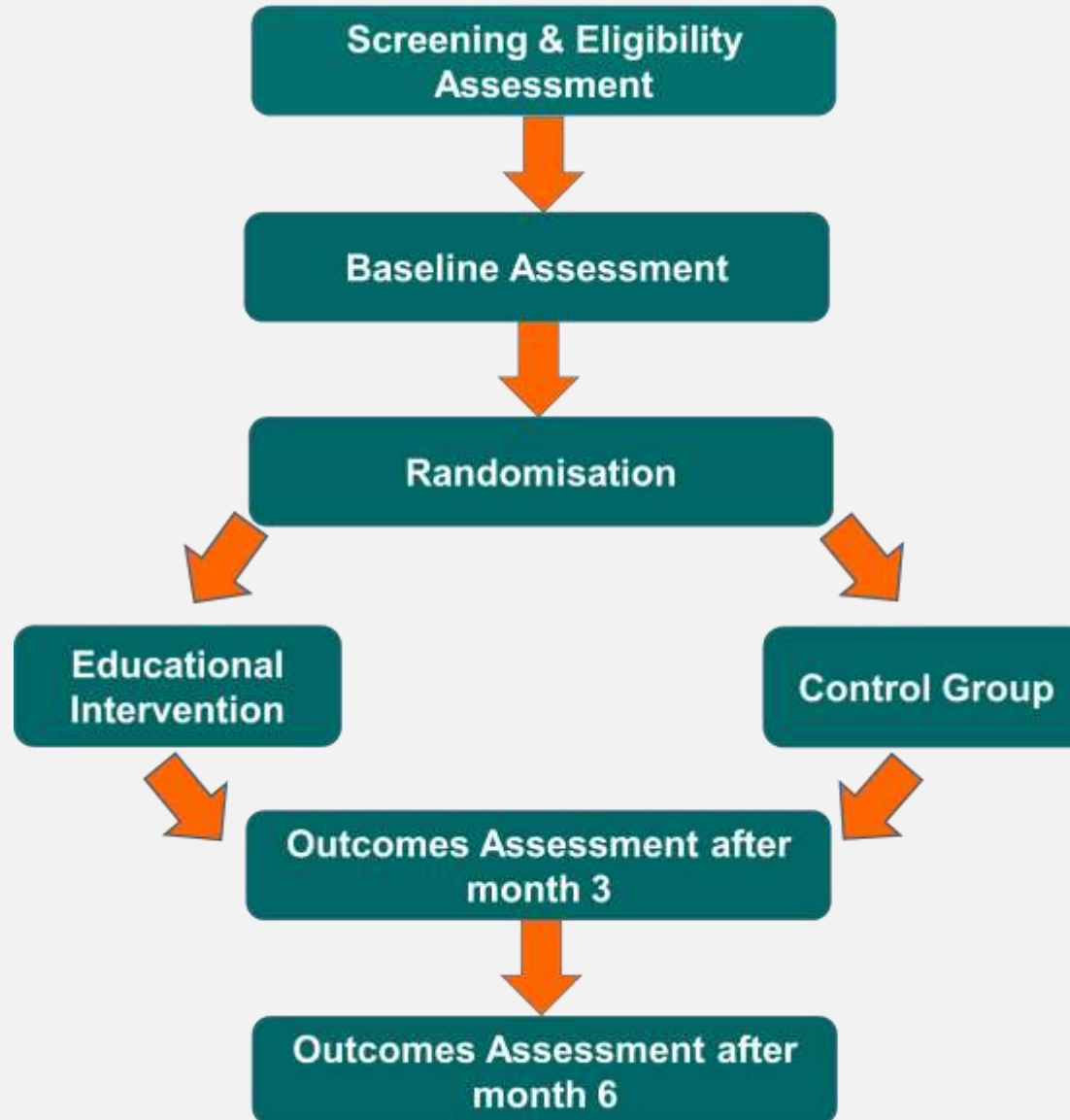
Measurements, Implementation and outcomes according to IMB:

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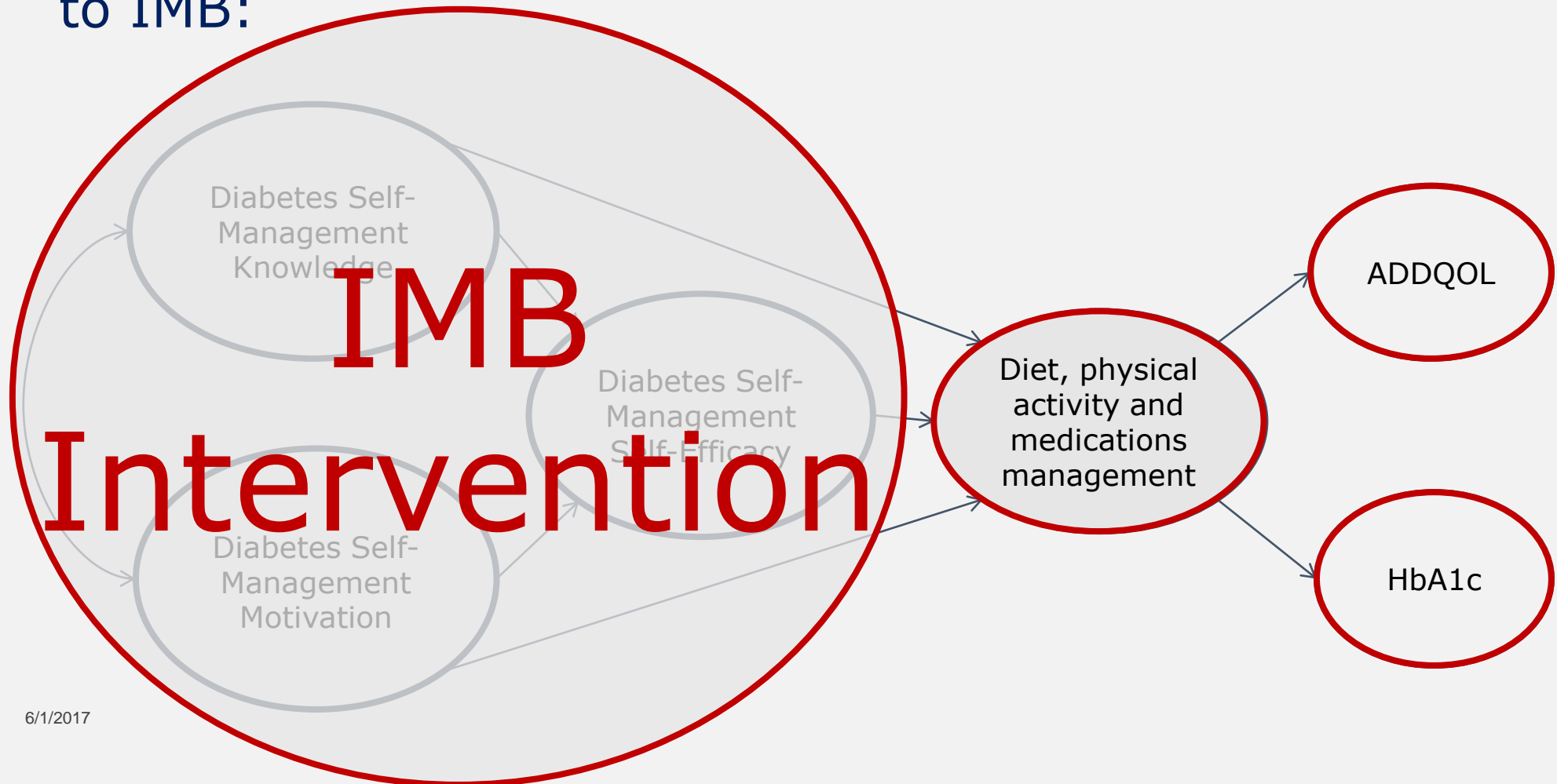
Second Phase:

- Interviews with intervention group participants will be conducted after delivering the intervention to evaluate the process of implementation.

- A purposive sampling approach will be used to choose and invite a representative sample for an interview until theoretical saturation is reached, based on the following:

1. Diversity on characteristics of participants' demographic.
2. An improvement in their HbA1c test at 3 months point (second visit).

Study Implication:

- This trial will make a knowledge contribution about conceptualizing behavioural change techniques, as well as individually and culturally tailored needs, within self-management educational intervention.

- It will provide a comprehensive understanding of how Jordanian patients' Knowledge, Motivation, Behavioural skills and metabolic outcomes changes overtime in tandem with performing self-management behaviours pre-and-post intervention and after follow up.

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