The Behavioral Challenge of Medication Adherence

Dr Debbie Cooke
Debbie.Cooke@atlantishealth.com
Head of Health Psychology, Atlantis Health UK
Honorary Associate Professor, Faculty of Health & Medical Sciences, University of Surrey, UK

CONNECTING PEOPLE SCIENCE AND REGULATION®

PDA Parenteral Drug Association

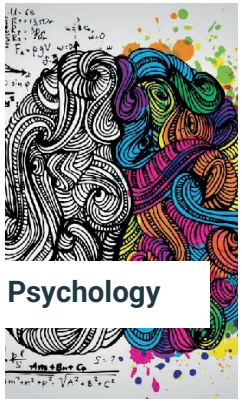
PDA WORKSHOP

- Understanding behavioral science
- The nature and determinants of medication non-adherence
- Facilitating adherence using connected devices and their apps
- Using behavior change theory to design targeted adherence interventions

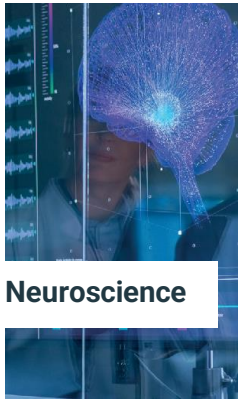

Behavioral science is the scientific understanding of why people make the decisions they do

Behavioral science encompasses multiple areas of research

Individual behavior



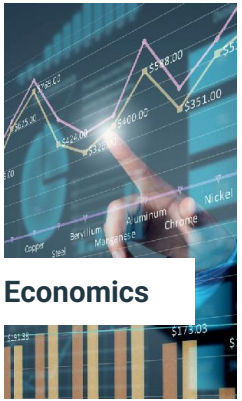
Psychology



Neuroscience

Psychiatry

Population behavior



Economics

Sociology

It allows us to gain insights into why people behave in unexpected ways

How well do people adhere to medication regimens?

What proportion of people living with long-term, physical health (chronic conditions) take their medication as prescribed?

A. 30%

B. 50%

C. 70%

Adherence to …

- The range of self-management behaviors necessary to either stay well or to live well with a long-term condition, including
  - Taking medication
  - Using devices and apps to self-monitor and support behavior change
  - Managing mood and well-being
  - Changing diet
  - Increasing physical activity
  - Attending healthcare appointments

Why a focus on medication adherence?

"Drugs don't work in patients who don't take them"[1]

"Increasing the effectiveness of adherence interventions may have a far greater impact on the health of the population than any improvement in specific medical treatments"[2]

"Medication adherence is barely on the radar for practicing HCPs"[3]

1. C. Everett Koop, US Surgeon General, 1985. 2. Sabaté E. World Health Organization; 2003. 3. Kleinsinger F. 2018

Impact of medication non-adherence

Research findings across long-term conditions demonstrate the negative impact of medication non-adherence:

Poor or less than optimal clinical outcomes. Up to 50% of Tx failures[1,2]

Lower quality of life[3]

Higher mortality[1,2]

Reduced productivity[3]

Increased costs and stress on the health system[4]

Reasons for non-adherence

Condition-related

- Comorbidity w/other illnesses & psychological problems
- Health literacy about condition
- Chronicity
- Absence of symptoms

Patient-related

- Fear/concerns about medication side effects
- Relief medications are harmful/unnecessary
- Forgetfulness
- Denial/stigma of diagnosis

Healthcare team & system

- Dissatisfaction & lack of trust in services
- Poor patient-provider communication
- Unavailability of drugs in facilities

Therapy-related

- Side-effects
- Complexity of regimens
- Longer treatment duration
- Illiteracy about medication

Social/economic

- Younger ages
- High medication cost
- Low education level
- Low income
- Access/location difficulties
- Poor social support

Konstantinou et al (2020), based on WHO Taxonomy[1]

Reasons for medication nonadherence

People do not take their medication as prescribed for all sorts of reasons:

Unintentional

Reasons for medication nonadherence

People do not take their medication as prescribed for all sorts of reasons:

Facilitating adherence using connected devices and their apps: Considerations

Behavior change is complex

- Behavior change (adherence) is hard – to initiate and to continue
- Behavior change is active and dynamic – it doesn't just happen; it requires sustained work and adaptations over time
- Information alone is not enough to change behavior

Facilitating adherence using connected devices and their apps: Considerations

Health behaviors like non-adherence are NOT easily fixed by:

- Providing information
- Providing reminders
- Being authoritative
- Fear arousal

Designing targeted interventions:

Different reasons for medication non-adherence require different solutions

"It's a hassle to take every day and integrate into my daily routine"

- Set up prompts and cues to remember
- Offer tips to help get organized

"But I don't have any symptoms, and I don't feel sick"

- Educate on nature of asymptomatic health conditions
- Show what's happening inside the body

"I can't self-inject on my own"

- Engage caregiver or family member to help
- Arrange for home nurse support

"The medication makes me feel nauseous"

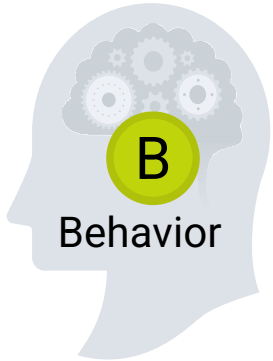
- Provide tips for managing nausea
- If possible, take the medication at a different time of day

Designing Targeted Interventions: The COM-B Model

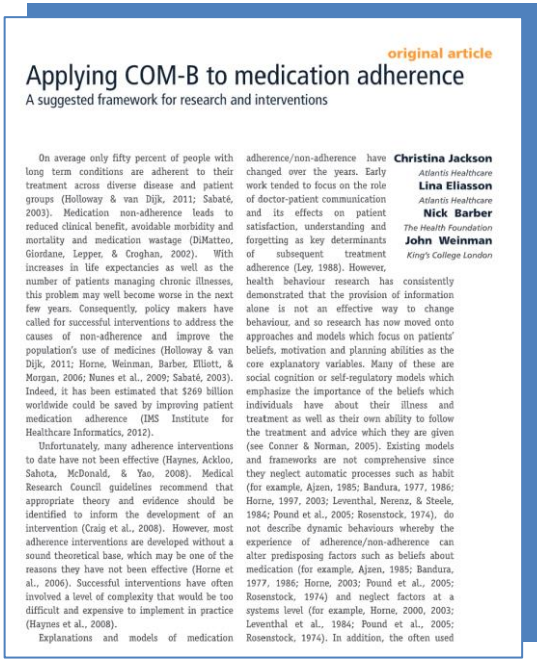
The COM-B model is a model of behavior change that incorporates all the range of factors that have been found to affect health-related behaviors

The model puts these factors into 3 broad groups:

- **C** Capability
- **O** Opportunity
- **M** Motivation



COM-B model was developed as a general framework and has also been applied specifically to understanding medication adherence



original article

Applying COM-B to medication adherence

A suggested framework for research and interventions

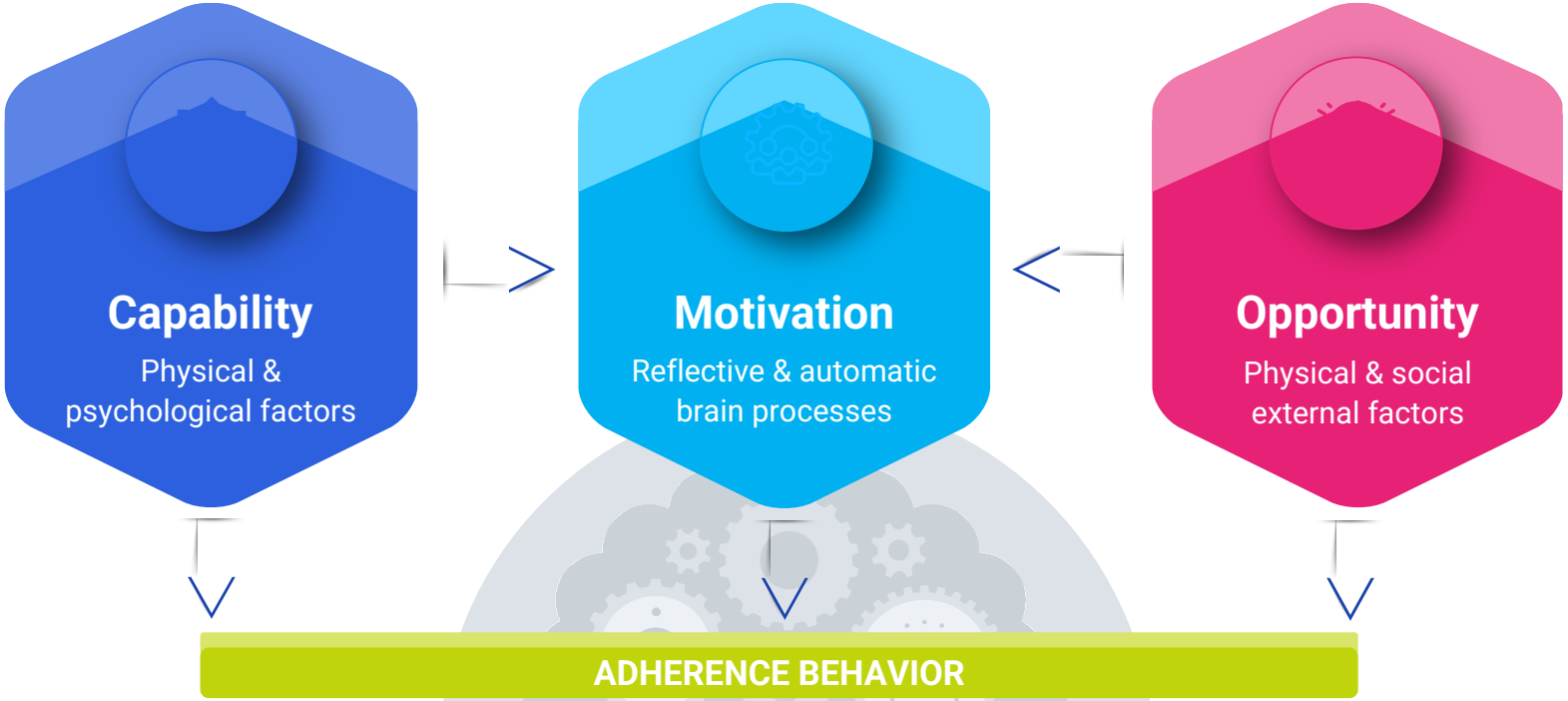
Christina Jackson
Atlantis Healthcare
Lina Eliasson
Atlantis Healthcare
Nick Barber
The Health Foundation
John Weinman
King's College London

On average only fifty percent of people with long term conditions are adherent to their treatment across diverse disease and patient groups (Holloway & van Dijk, 2011; Sabaté, 2003). Medication non-adherence leads to reduced clinical benefit, avoidable morbidity and mortality and medication wastage (DiMatteo, Giordane, Lepper, & Croghan, 2002). With increases in life expectancies as well as the number of patients managing chronic illnesses, this problem may well become worse in the next few years. Consequently, policy makers have called for successful interventions to address the causes of non-adherence and improve the population's use of medicines (Holloway & van Dijk, 2011; Horne, Weinman, Barber, Elliott, & Morgan, 2006; Nunes et al., 2009; Sabaté, 2003). Indeed, it has been estimated that $269 billion worldwide could be saved by improving patient medication adherence (IMS Institute for Healthcare Informatics, 2012).

Unfortunately, many adherence interventions to date have not been effective (Haynes, Ackloo, Sahota, McDonald, & Yao, 2008). Medical Research Council guidelines recommend that appropriate theory and evidence should be identified to inform the development of an intervention (Craig et al., 2008). However, most adherence interventions are developed without a sound theoretical base, which may be one of the reasons they have not been effective (Horne et al., 2006). Successful interventions have often involved a level of complexity that would be too difficult and expensive to implement in practice (Haynes et al., 2008).

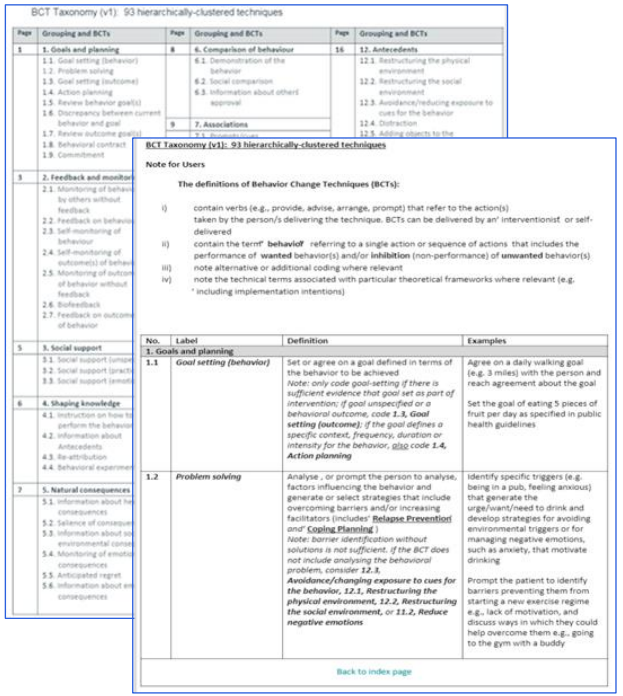
Explanations and models of medication adherence/non-adherence have changed over the years. Early work tended to focus on the role of doctor-patient communication and its effects on patient satisfaction, understanding and forgetting as key determinants of subsequent treatment adherence (Ley, 1988). However, health behaviour research has consistently demonstrated that the provision of information alone is not an effective way to change behaviour, and so research has now moved onto approaches and models which focus on patients' beliefs, motivation and planning abilities as the core explanatory variables. Many of these are social cognition or self-regulatory models which emphasize the importance of the beliefs which individuals have about their illness and treatment as well as their own ability to follow the treatment and advice which they are given (see Conner & Norman, 2005). Existing models and frameworks are not comprehensive since they neglect automatic processes such as habit (for example, Ajzen, 1985; Bandura, 1977, 1986; Horne, 1997, 2003; Leventhal, Nerenz, & Steele, 1984; Pound et al., 2005; Rosenstock, 1974), do not describe dynamic behaviours whereby the experience of adherence/non-adherence can alter predisposing factors such as beliefs about medication (for example, Ajzen, 1985; Bandura, 1977, 1986; Horne, 2003; Pound et al., 2005; Rosenstock, 1974) and neglect factors at a systems level (for example, Horne, 2000, 2003; Leventhal et al., 1984; Pound et al., 2005; Rosenstock, 1974). In addition, the often used

The COM-B Model



Behavior Change Techniques (BCTs)

- BCTs are theory-based methods for changing one or several aspects of behavior
- The ‘active ingredient’ of a behavior change intervention
- There are 93 BCTs
- Arrived at through international and interdisciplinary consensus
- Reported in a comprehensive taxonomy, organized into hierarchical clusters, that is ever evolving
- **CAN BE DELIVERED VIA MANY DIFFERENT MEANS/MODES**


BCT Taxonomy (v1): 93 hierarchically-clustered techniques

Page	Grouping and BCTs	Page	Grouping and BCTs	Page	Grouping and BCTs
1	1. Goals and planning	8	6. Comparison of behaviour	16	12. Antecedents
	1.1. Goal setting (behavior)		6.1. Demonstration of the behavior		12.1. Restructuring the physical environment
	1.2. Problem solving		6.2. Social comparison		12.2. Restructuring the social environment
	1.3. Goal setting (outcome)		6.3. Information about others' approval		12.3. Avoidance/reducing exposure to cues for the behavior
	1.4. Action planning	9	7. Associations		12.4. Distraction
	1.5. Review behavior goal(s)		7.1. Prompts/cues		12.5. Adding objects to the
	1.6. Discrepancy between current behavior and goal				
	1.7. Review outcome goal(s)				
	1.8. Behavioral contract				
	1.9. Commitment				
3	2. Feedback and monitor				
	2.1. Monitoring of behavi by others without feedback				
	2.2. Feedback on behavio				
	2.3. Self-monitoring of behaviour				
	2.4. Self-monitoring of outcome(s) of behavi				
	2.5. Monitoring of outcom of behavior without feedback				
	2.6. Biofeedback				
	2.7. Feedback on outcom of behavior				
5	3. Social support				
	3.1. Social support (unspe				
	3.2. Social support (practi				
	3.3. Social support (emoti				
6	4. Shaping knowledge				
	4.1. Instruction on how to perform the behavior				
	4.2. Information about Antecedents				
	4.3. Re-attribution				
	4.4. Behavioral experimen				
7	5. Natural consequences				
	5.1. Information about he consequences				
	5.2. Salience of consequ				
	5.3. Information about so environmental conse				
	5.4. Monitoring of emotio consequences				
	5.5. Anticipated regret				
	5.6. Information about co consequences				

BCT Taxonomy (v1): 93 hierarchically-clustered techniques

Note for Users

The definitions of Behavior Change Techniques (BCTs):

i) contain verbs (e.g., provide, advise, arrange, prompt) that refer to the action(s) taken by the person/s delivering the technique. BCTs can be delivered by an' interventionist or self-delivered

ii) contain the term' **behavio**r referring to a single action or sequence of actions that includes the performance of **wanted** behavior(s) and/or **inhibition** (non-performance) of **unwanted** behavior(s)

iii) note alternative or additional coding where relevant

iv) note the technical terms associated with particular theoretical frameworks where relevant (e.g. ' including implementation intentions)

No.	Label	Definition	Examples
1. Goals and planning			
1.1	***Goal setting (behavior)***	Set or agree on a goal defined in terms of the behavior to be achieved *Note: only code goal-setting if there is sufficient evidence that goal set as part of intervention; if goal unspecified or a behavioral outcome, code **1.3, Goal setting (outcome)**; if the goal defines a specific context, frequency, duration or intensity for the behavior, also code **1.4, Action planning***	Agree on a daily walking goal (e.g. 3 miles) with the person and reach agreement about the goal Set the goal of eating 5 pieces of fruit per day as specified in public health guidelines
1.2	***Problem solving***	Analyse , or prompt the person to analyse, factors influencing the behavior and generate or select strategies that include overcoming barriers and/or increasing facilitators (includes' **Relapse Prevention**) and' **Coping Planning**') *Note: barrier identification without solutions is not sufficient. If the BCT does not include analysing the behavioral problem, consider **12.1, Avoidance/changing exposure to cues for the behavior, 12.1, Restructuring the physical environment, 12.2, Restructuring the social environment,** or **11.2, Reduce negative emotions***	Identify specific triggers (e.g. being in a pub, feeling anxious) that generate the urge/want/need to drink and develop strategies for avoiding environmental triggers or for managing negative emotions, such as anxiety, that motivate drinking Prompt the patient to identify barriers preventing them from starting a new exercise regime e.g., lack of motivation, and discuss ways in which they could help overcome them e.g., going to the gym with a buddy

Back to index page

BCTs are the ‘active’ ingredients

- We can think of BCTs as being like the “ingredients” in a recipe
- Each ingredient plays a unique role
- The ingredients work with each other
- The ingredients are carefully combined to create an effective behavior change intervention or solution

Thanks for listening!