

Cycle of change

Its simplicity is beguiling, but does Prochaska and DiClemente's ubiquitous model of change simply describe the change process, or help create and accelerate it? This definitive critique tests the practical uses of the world's most popular therapeutic model.



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n the late 1970s James Prochaska attempted to make sense of the confusing variety of psychotherapies by reducing them to the relatively few ways people change their behaviour. 12 Famously, Carlo DiClemente joined him to test and refine the model on smokers. Distilling theoretical confusion into 'transtheoretical' clarity was their objective, and the popularity of the model which emerged is a mark of their success. But widespread appeal and face value are no guarantors of validity, especially (just as the flat earth model is contradicted from space) beyond the horizons within which the beliefs in question seemed to make sense. Recently the transtheoretical model of change has been subject to critiques which recognise its strengths, but also its limitations. 1 3 4 5 6 7 8 9 10 Though spelled out by its developers, some of these limitations but have been overlooked in the enthusiasm to extend the model across health promotion and therapy.6

Readers will be familiar with the model; addiction textbooks typically feature its trademark circle diagram in the first chapter. Constructed in the early 1980s,11 ironically (rigure 1) in its fullest form it is far from simple. 12 It involves three dimensions - stages, processes, and levels of change and several 'change variables'. The ten processes are the underlying change strategies adopted by individuals and promoted by therapy - "engines" 13 of change ranging from consciousness-raising to social liberation. 12 Problems which need to be changed can occur at five levels, from directly tackling the presenting symptoms (eg, drug use) through to deeper psychological or social features which generate those symptoms and impede change. 12 14 Decisional balance (perceptions of the pros and cons of changing or not changing) and self-efficacy (confidence in ability to change) are key change variables whose role seems respectively to motivate change and to enable this impetus to be expressed in action. 12 15

It is, however, the *stage* dimension, often presented as a 'cycle of change' (r figure 2), which has caught the imagination

and provoked most research and critical comment. Said to represent how motivation for change develops over time, this is where the model is at its simplest and appears most obviously to make sense. It portrays motivational transition as an ordered, segmented sequence leading from 'no problem' in the sense that the individual has yet to acknowledge one, to 'no problem' in the form of a securely integrated resolution of the problem. Between are stages during which change is pondered, prepared for, implemented and stabilised. It is also the dimension on which the whole model hinges, with change processes and variables playing greater or lesser roles at different stages and different levels seen as having progressed to different stages. Stage is therefore the dimension on which we focus.

A star among stage models

Stage models in psychology are not new and usually fall into two broad types. *Developmental* models, such as Piaget's ideas on cognitive development, chart transfor-

mations from one distinctly different stage to the next, with no going back, like the transformation of a caterpillar into a butterfly. The second type describes transitional change in which the 'stages' can be seen as arbitrary points on a continuum (a little caterpillar growing into a larger caterpillar). Examples include the Kubler Ross model of emotional response to terminal illness, ¹⁶ and descriptions of stages in attitudinal change ¹⁷ and phases of grief. ¹⁸ Prochaska and DiClemente's model of motivational change follows this tradition. ¹¹

Criticisms of transitional stage models have changed little over the years. Do they just segment what in reality is continuous – a slope rather than steps? Are the stages arbitrary? Do people progress logically through them? Do most successful changers pass through all stages? Are stages and the movements between them universal, or specific to age, gender or culture? Does stage membership predict anything meaningful? Such comments on the Kubler Ross model some 30 years ago mirror almost

Golden Bullets

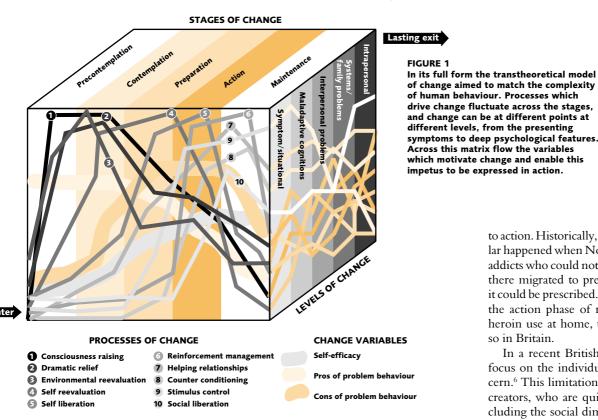
Essential practice points from this article

- ▶ It is impossible to definitively say what stage of change an individual is at and the 'stages' can justifiably be seen as arbitrary points on a continuum rather than distinct motivational states.
- The model encourages a focus on the individual rather than on environmental, social or political change.
- Successful change can occur without having to go through each stage and stages can be skipped.
- Strategies used to change are different at different stages and important variables relating to the impetus and ability for change also vary across stages. This raises the possibility of matching interventions to stages.
- There is no evidence that such matching improves outcomes but this may be because so few studies have been done.
- The model continues to stimulate ideas on service delivery and health promotion and reminds us that addiction is essentially a motivational problem.
- lt also allows client and therapist to aim for and celebrate small movements forward short of change, encompasses the 'unmotivated' in the change process, and encourages a positive reaction to relapse.





human complexity.



exactly contemporary critiques of the transtheoretical model of change.38

Just as there have been stage models before, so there have been descriptions of motivational influences on addictive behaviour. 19 20 But the cycle of change is by far the most influential. First standardised on a large cohort of smokers, it has been applied to behaviours as diverse as exercise,21 diet,22 self-control of diabetes,23 mammography screening²⁴ and condom use,²⁵ as well as alcohol and drug use.

The real test of the model is whether its application creates better outcomes. The claim that each stage entails "specific unique tasks that need to be accomplished in order to move successfully to the next stage"13 means that 'stage-matched' interventions ought to do better - interventions, that is, addressing tasks which correspond to the stage the individual is at and which stimulate the processes thought to drive change at that stage. Before reviewing the relevant findings, it is important to examine how what is being matched to - the stage of change - is defined and assessed. If we cannot pin that down, then the whole matching exercise cannot even begin.

What is being staged?

In practice it is very difficult to say of someone that they are at this or that stage of the model. First, it depends which problem behaviour you are talking about. In turn this raises the issue of who decides on which behaviour to focus. The alcohol version of a questionnaire used to assess stages simply instructs the client to interpret its references to problems "in terms of problems related to your drinking". But abstracting one problem for staging defies the reality of multiple problems (perhaps even multiple drug problems), each of which may be at different stages.¹³ Even what seems one problem can be composed of several facets at different stages. Someone may already have mastered the violence that used to arise from their drinking but still be thinking about drink-driving, and not even contemplating cutting down enough to safeguard their health. With respect to the "problems related to your drinking", which stage are they at? Such complexity is recognised partly by the levels dimension, but this has received relatively little attention.1

Secondly, it is not so much an individual who is at a stage, as that individual in the context of society.1 If stages are real, they describe a relationship between a person and their environment, not just a motivational state within an individual. In US states where syringe exchange is unavailable and new syringes hard to come by, an injector concerned about infection may be destined forever to remain in precontemplation (or at best, contemplation) with respect to sharing injecting equipment. In the UK the same injector could move straight to action. Historically, something very similar happened when North American heroin addicts who could not be prescribed heroin there migrated to pre-1968 Britain where it could be prescribed. Unable to move into the action phase of reducing harm from heroin use at home, they were able to do so in Britain.

In a recent British review the model's focus on the individual was a major concern.6 This limitation is no criticism of its creators, who are quite explicit about excluding the social dimension. However, it is a worry if enthusiasts take too literally their claim to have constructed a "comprehensive" model of change, especially one now being positioned as a guide to altering the behaviour of whole populations.¹³

What stage are you at?

For some purposes – addiction therapy may be one – it could be useful to simplify things by accepting the twin abstractions of a single problem and a motivationally isolated individual. Still, there remains the task of allocating these stripped down individuals to a stage of change. Do such stages exist, or is motivational change far too complex to be distilled into a few discrete categories?8 This continuum versus stage argument is not just of theoretical importance. If unique therapeutic tasks and appropriate interventions are to be assigned, there must be stages to assign them to.9

In smoking studies, stages tend to be assessed by 'algorithms' consisting of a few direct questions about intentions and behaviour, such as "Are you planning to quit smoking in the next 30 days?"26 The resulting classification system incorporates a time component which makes it inherently non-stage like, and though a model of motivation, it mixes intention with behaviour. Precontemplators, contemplators and preparers largely differ only in the timing of their intention to change: not (if at all) within six months; within six months but not the next 30 days; or within 30 days. Action and maintenance are behavioural



categories for those who changed up to six months and more than six months ago respectively. People can move through this part of the cycle simply by passage of time rather than any altered psychological state. From this perspective, stages are not distinct motivational states but arbitrary time segments which may not mirror any psychological reality. Why not 20 rather than 30 days, or nine rather than six months?

For addiction treatment clients, straight questioning is considered unreliable¹³ and instead questionnaires have been devised to tap attitudes characteristic of each stage. Analysis of the resultant data has provided evidence both for distinct stages and for a continuum. This duality is not surprising: one of the two main statistical methods used to analyse the data imposes a 'stage' structure, while the other imposes a structure of continuous variables.¹ A physical analogy is the way different measurement systems lead light to be seen either as separate particles (like the stages) or continuous waves (like the variables).

The most widely used of the questionnaires are the *University of Rhode Island Change Assessment* (URICA) and *Readiness to Change*.²⁷ For Project MATCH, researchers (including Carlo DiClemente) calculated a single continuous 'readiness to change' variable from the URICA,²⁸ the level of which can be used to assign people to different stages.²⁹ This moves the 'stage' model very much into continuum territory. A similar variable emerged from analysis of *Readiness to Change* data.⁹

Evidence for discrete stages is based on the clustering of responses to questionnaire items; those indicative of one stage hold together far more than those from different stages. But any questionnaire can reliably yield such a structure if the items which cluster basically ask the same question in different words,³⁰ known in questionnaire design as the "bloated specific".³¹

'Stages' suggested by such a structure are mathematical rather than psychological constructs.³² In respect of the URICA, this seems exactly what has happened; though technically sound, the categories derived from it may be no more than bloated specifics.⁴ Some URICA items for which the answer to the first seems to logically determine the answer to the second are listed on page 23. The overlap between these and other items appears obvious without recourse to complex statistical analyses.¹³

It is also disconcerting that the clusters emerging from statistical analyses vary and don't always correspond to the supposed stages. Some combine precontemplation and action, 1 others have highish scores on all the stages, others lowish ones. The "anomalous" groups emerging from such analyses bear only partial and shifting relations to the model. Rather than sharp divisions of subjects into one stage or another, analyses typically find the scores for one stage co-vary with those for another in ways which suggest they are not distinct states.9

Still a useful map

Despite all that's been said, the model may be of use in assisting change. Even if stages are just arbitrary points on a continuum, they can still act as meaningful and useful signposts to clients and practitioners. Unlike theories, models can have faults yet still promote understanding and discovery.³⁴

A map too is an abstraction from 3D reality which segments a continuous space with arbitrary grid lines – but it has its uses in driving from A to C. It can show that one has first to go through B (orderly transition), that if you are already at B you are more likely to get to C and to get there more quickly (prediction), and that to get to B you will need to go left, but from B to C to go right (matching processes to stages).

Ultimately, maps have practical uses by indicating that certain interventions will be

needed to traverse from A to C: fuel to drive progress and turns of the wheel in the right direction at the right time. Maps also alert one to the fact that turning in the wrong direction will take you further from your destination. A map is a model which, by simplifying and enabling an overview of the entire route, permits systematic progress to made and measured. This is the promise of the cycle of change; if it delivers, it will be worth holding on to. First, the issue of transition between stages.

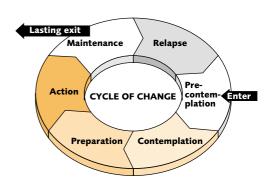
Orderly transition between stages

The model's creators have argued that successful recovery from addiction can only occur after every stage has been traversed,35 having found no successful changers who had skipped a stage.³⁶ Others claim to have found precisely this in the form of noncontemplative change among heavy drinkers in hospital³⁷ and in smokers who seem abruptly to stop without passing through the preceding stages.⁵ One of the few studies tracking the process of change followed up 544 (ex-)smokers.³⁸ A critical reanalysis revealed that none made stable progression across three or more stages and a third remained in the same stage for the two years of the study. 10 Non-adjacent stages were almost as highly correlated as adjacent stages. This does not support the idea that to unpick an addiction you must definitely go through the stages.

However, Prochaska and DiClemente can account for such findings by agreeing that stage transitions can indeed be rapid. ¹³ ⁴² If so, measures taken months apart may miss intervening stages. The problem with this explanation is that it renders untestable the core assertion that it is impossible to successfully change by skipping stages. Testing it would require continual 24-hour a day stage monitoring to capture the moment during which (say) contemplation hardened into a fleeting preparation stage

... and the lure of simplicity

Abstracted from the full model, the stages diagram is beguilingly simple but fails to capture the multidimensional nature of change and provides no clues to how to progress towards change. But it does inject hope by reformulating the 'unmotivated' client as someone with the potential to change and by redefining relapse as a positive phase on the spiral upward to recovery.





in which a decision is taken to quit and quit now. Without constant observation, this would look like a skip from contemplation to action. By the same token, observations of orderly movement from one stage to its neighbour do nothing to support the model: here too there could have been an intervening skip to an outlying stage.

Relevant findings are not available for alcohol and drug users.9 However, the model's origins in smokers who stop without formal help¹ could limit its application to other substances. It is avowedly about "intentional" change - the kind which happens when someone weighs up the pros and cons of their behaviour and makes a conscious decision to stop.35 This process typifies untreated cessation of smoking, where health risk seems a primary motivation,^{39 40} but is less important in alcohol or drug use. Even with smoking, the forces which lead one to think a decision is needed (move from precontemplation to contemplation) lie largely outside the model's remit.12

Abstracted from social, cultural and environmental influences, individual change may indeed be orderly, but buffeting by these forces makes it more complex and less predictable.6 Among these are forces experienced more often and more sharply in respect of alcohol and drug use than smoking: legal and other forms of coercion; the drying up of sources of supply; health problems which make continuing as before not really an option; maturing into responsibilities incompatible with continued intoxication or crime; new social networks consequent on job changes, moving home, leaving college, or other life transitions. A pros-and-cons type decision can happen,41 but particularly in respect of people who seek treatment,40 crises of values, identity, relationships, and survival can precipitate change which seems to bear little relation to a decision taken after due consideration of the advantages and disadvantages.⁴³

There are also some technical glitches in the model. In some formulations a prior attempt to quit is integral to the definition of being in preparation, which is seen as an essential prerequisite to action. This makes transition across these stages impossible for first-time quitters, even if they stop using their problem drug for good.9

On balance, it would seem wrong to conclude that quality change can only occur if an individual proceeds through each stage (even if spirally and with many reverses) or that transition can occur only to neighbouring stages. To return to the map

> analogy, it seems that C can be reached without traversing A and B, and that a skip from A to C and vice versa is possible without crossing B. Such a map may still

work well enough for most journeys, but it is not a wholly reliable guide.

Stages (usually) predict progress

If stages really are signposts of progress, then the further someone has travelled the more likely they will be to reach lasting change within a given period. The relationship will not be perfect – people can slip back as well as move forwards - but on average it should be there. This is just what studies of smokers have found. 13 14

Among drinkers too, measures of stage of change generally predict later drinking outcomes, though not always and sometimes only partially.44 Questionnaires used to allocate to stage can also be used to derive a variable representing motivation for change which can range continuously from

▶ ► The model may motivate both client and therapist by allowing them to aim for and celebrate small movements forward.

low to high. Two versions of such a variable 928 were measured at intake into the alcohol treatments evaluated by Project MATCH. For both, the more motivated an outpatient was at intake, the less often they drank one and three years later, and when they did drink, the less they consumed. The long-term predictive power of readiness to change outperformed even severity of alcohol problems or dependence.⁴⁵

However, predictions based on stage are like the consultant who replays back to us what we already know. For example, it is no surprise that people who have already started to become ex-smokers (preparation or action) are more likely to become exsmokers (maintenance) than people who have no intention of becoming ex-smokers (precontemplation): change predicts change.7 What is more surprising is that it does so inconsistently and sometimes less well than other variables not directly related to whether change has already started. For example, though measures taken during the intervention supported the primacy of stage and process variables, in one weight control study positive outcomes were much more closely related to whether at the start a supportive friend was to hand than to initial stage of change.46

While stage of change often predicts outcomes, this might just be because it is associated with other factors, such as degree of dependence. Sophisticated statistical techniques can tease out these relationships, but have rarely been employed in stage studies.²⁶ An exception was a detailed follow up of about 2000 smokers²⁶ in which measures of dependence⁴⁷ were far better than

stage membership at predicting smoking cessation up to two years later. Once dependence had been taken into account, stage was not predictive at all. Supporters of the model queried the study's methodology and suggested that an anti-smoking campaign in the area might have obscured stage effects.⁴⁸ Other experts argued that rather than pitting one predictor against another, it was more important to explore how variables like stage membership and drug dependence interrelate. 49 50

Recently an eight-year follow up 953 Swiss smokers did just this.⁵¹ Initial stage of change was a better predictor of giving up than severity of dependence, but still just barely significant. Much more significant was the interaction between stage and the number of cigarettes smoked daily. How many precontemplators smoked made no difference to whether they quit. For contemplators, the more they smoked, the less likely they were to have stopped eight years later. The unexpected finding was that heavier smokers in the preparation stage were more likely to have given up altogether: below 17 cigarettes a day, being in a more advanced stage (preparation versus contemplation) made it less likely that you would stop. Since all the preparers had previously tried to quit, one interpretation is that if quit attempts have at least moderated your habit, then you have less incentive to follow through on a current intention go the whole hog and stop altogether.

The study is weakened by an incomplete assessment of stage. But if confirmed, such findings would be hard to incorporate in a model which predicts that higher stages are more likely to lead to problem resolution. It raises the possibility that some combination of a motivational measure and a measure of dependence might prove the best indicator of future use. To return to our map, it is as if the cartographers missed a dimension (such as the steepness of the climb from A to C) which is important in predicting and planning progress. Were this indicated (as by contour lines), we might see that another route, though less direct, took us more quickly to our destination.

Processes map to stages

The ultimate test of Prochaska and DiClemente's way of dividing up the motivational spectrum is whether the divisions relate to something outside themselves in a way which helps us understand how people change, and therefore helps devise ways to promote change.

Pride of place is taken by the ten change processes. Early in the model's development these were keyed into the stages.112 Pre-action phases are said to be characterised by "cognitive/experiential" processes such as consciousness-raising, while movement from preparation to maintenance is

We are grateful to Dr Robin Bunton of the School of Social Sciences at the University of Teeside for comments on this article in draft. Though he has enriched it, he bears no responsibility for the final text.



Accepted of Studies on Alcohol

Examples of the 'bloated specific'

Precontemplation

- As far as I'm concerned I don't have any problems that need changing.
- ► I guess I have faults but there is nothing that I really need to change.

Contemplation

- ▼ I have a problem and I really think I should work on it.
- ► I've been thinking that I want to change something about myself.

Action

- ▶ I am doing something about the problems that have been bothering me.
- Anyone can talk about change, I am actually doing something about it.

Maintenance

- ▶ It worries me that I might slip back on a problem I have already changed and I am here to seek help.
- ▼ I am here to prevent myself from having a relapse of my problem.

generated by more action-oriented processes such as rewarding change region figure 1.¹³ At either end of the model, the stable phases of precontemplation and maintenance are characterised by low levels of change processes. Though the profile of the processes differs for different behaviours, ¹² this general linkage is supported by the evidence.¹

Useful as this insight may be, it is not entirely appropriate to portray it as an important discovery¹³ because these linkages are partly built in to the model. It is, for example, impossible to reward change if no change has yet occurred. That self-liberation ("choosing and commitment to act or belief in ability to change") characterises the transition from intention to action³⁶ seems to be saying the same thing in different words. More generally, it seems inevitable that action-oriented strategies characterise stages where action is being taken, and cognitive (ie, thinking) strategies phases where it is simply being thought about.

In the model, processes are the *ways* people change. *Whether* they change is said to be related to 'change variables' such as the 'decisional balance' between what people see as the pros and cons of continuing with the problem behaviour; how much they feel tempted to behave that way in different situations ('temptation'); and their confidence in being able to resist temptation ('self-efficacy'). Like the processes, in studies of smokers these variables have been found to differ across the stages.¹²

In precontemplation, the pros of smoking are seen as high and the cons low. In preparation, pros remain high but start to be outweighed by the cons, making a decision to stop more likely. As change becomes embedded in the maintenance phase, smoking is less of an issue and both cons and pros decline, though cons continue to outweigh pros. Again, useful insights, but partly built into the fact that the model is limited to *intentional* change, the kind which

happens after an appraisal of the pros and cons and which characterises self-cessation of smoking, the behaviour from which the model was extracted.⁴⁸

Items from URICA show

between them emerges

how a spurious relationship

because the same question

is asked in different terms.

Self-efficacy is said to increase across the stages and substantially in the action stage. Efficacy beliefs have been shown to be good predictors of late stage transition, but less important in progressing out of precontemplation.⁵² Unfortunately, this pattern has been difficult to replicate.⁵³

Matching interventions to stages

Whether the 'right' processes are being used at the right stage, and whether change variables are at the optimal level, have been found to predict movement between stages and eventual outcomes, though none of the published work deals with alcohol or illegal drugs. ^{1 13 35 36} Such an interaction suggests that interventions too should differ at different stages. Verbal strategies which emphasise self-awareness (education, feedback, and accurate interpretation) should be the focus during contemplation, planning action and bolstering commitment to change are appropriate to preparation, behavioural strategies to action. ¹⁵

While this 'makes sense', whether it works can only be tested in practice. There is no guarantee that artificially intervening to prod a contemplator into preparation and then to move the preparer to action will have the same impact as the self-change processes on which the model was founded. The underlying causal mechanisms may not be replicated by motivational interventions, treatment or coercion.⁵⁴

In fact, there is little evidence to support matching interventions to stages. This may be because so few studies have been done, ¹⁶ and none at all on alcohol or drugs. ⁹ ¹³ The upshot is that, for these problems, the main practical application of the model lacks an evidence base. One study of smoking cessation did find that stage-matched

manuals bettered standard approaches at the 18-month follow-up, but not beforehand. Best of all was supplementing the manuals with stage-matched computerised feedback on progress and on which strategies now to adopt. However, there is no convincing answer to why adding phone calls from counsellors to this menu should worsen outcomes. Though stage-matching did seem to confer benefits, whether it did so because it fostered the stage transitions and processes postulated by the model is unclear. Even whether the manuals were actually used in a stage-matched way was up to the smokers concerned.

Among problem drinkers, Project MATCH is the major study which came closest to a test of stage-matching. Rather than assigning patients to stages, it correlated outcomes with measures of readiness to change derived from staging questionnaires. With minor exceptions, MATCH's three therapies worked equally well, whatever the client's readiness. The findings did not support the expectation that motivational enhancement would be particularly suitable for drinkers in the early stages of change, or that action-oriented therapies were particularly appropriate for the later stages. This could have been because all the patients were already taking action in the form of entering treatment, leaving little scope for motivational interventions to prod them from precontemplation to action.

A small study of male heavy drinkers identified in general hospital wards did find many not yet ready to change their drinking. For these pre-action patients, a short motivational interview led to a greater reduction in drinking six months later than a skills-based intervention. However, the key test of whether the two interventions were suitable for different stages was not statistically significant.⁵⁵ Another study also recruited many drinkers assessed as in precontemplation, this time adolescents hospitalised due to an incident related to their drinking Nugget 3.10. A brief motivational intervention reduced future alcohol-related problems more than simply giving the patients a drink-driving handout plus a list of treatment agencies. However, there was no evidence that it was more suited to precontemplators as opposed to those already committed to change.⁵⁶

None of these studies was able to test whether adjusting the intervention to the changing motivational state of the client (the way many therapists believe the model should be used) accelerates progress through the stages. If it existed, such an effect would be founded on the model's assumption that transition between stages is best promoted by strategies matched to those stages, an assumption yet to be supported among drug and alcohol users. DiClemente has acknowledged that we are



far from fully understanding the complex interaction between motivational readiness and treatment.14 Most of us would probably agree with him and his colleagues that lasting change depends on "doing the right things (processes) at the right times (stage)", and they make an important distinction between readiness to change and readiness for treatment (being ready for both maximises outcomes).36 But there is no good evidence that their model can inform addiction workers about the right approach to adopt for the person in front of them, whichever form of readiness is being matched to and whatever the client's stage of change. Persuasive as it is, this prospect remains an article of faith.

A motivating model

A few years ago I noted that criticism of stage models itself goes through stages: uncritical acceptance; guarded but sympathetic commentary; downright hostility; and, finally, grandfather status – not particularly useful, but good to have around for reference. The cycle of change has progressed to attracting hostile criticism, but for me is not yet sufficiently beyond its useful working life to have reached grandfather stage.

As its creators stress, they developed a model, not a theory. To an extent, their model is itself a 'bloated specific' whose logic flows from its limitation to intentional change. Its creators unpacked what such change means, like the unfolding of a tightly packed toy after the box is opened and the springs released. This helps us see what was largely there all along, but does not seem to help tailor treatment to individual need. There are also clearly deficiencies in the instruments used for stage allocation. The segments of the cycle are probably not distinct stages but artificial markers on a motivational continuum. Stage progression requires further analysis, as some people do seem to deal with their addiction without going round the whole circle.

Nonetheless, the model continues to serve as a rich vein of ideas on service delivery and public health promotion. At least with respect to smoking, stage matched manuals have bettered standard self-help programmes, and with respect to both smoking and drinking the model has predictive power in that it can forecast health-related behaviour. The stages, processes and levels of the transtheoretical model continue to perform their original function of synthesising approaches from various theoretical backgrounds.

The model retains intuitive appeal for all of us who use it and articulates the simple but profound idea that addiction is a *motivational* problem.⁵⁷ So, it might be said, is treating addiction. To client and therapist the model gives hope by allowing both to aim for and celebrate small movements

forward. It reformulates the 'unmotivated' client as someone within the change cycle and with the potential to move through it. It even redefines relapse as a positive phase on the spiral to lasting change.³⁶ Despite concerns,⁶ there is no one it gives us permission to abandon as unpromising or a failure.¹³ If generating motivation in this sense is its legacy – and enthusiasm for the model suggests this may be the case – then it will have done its job.

- **1** Joseph J., *et al*. "Critical perspectives on the transtheoretical model and stages of change." In Tucker J.A., *et al*, *eds. Changing addictive behaviour.* Guilford Press, 1999, p. 160–190.
- 2 Prochaska J.O. Systems of psychotherapy: a transtheoretical analysis. Homewood, Illinois: Doesey Press, 1979.
 3 Davidson R. "Prochaska and DiClemente's model of
- **3** Davidson R. "Prochaska and DiClemente's model of change: a case study?." *British Journal of Addiction*: 1992, 87, p. 821–822.
- **4** Davidson R. "The transtheoretical model: a critical overview." In: Miller W.E., Heather N., eds. Treating addictive behaviors. 2nd edition. Plenum Press, 1998.
- **5** Bunton R., *et al.* "The 'stages of change' model in health promotion." *Critical Public Health*: 2000, 10(1), p. 55–70.
- 6 Health Education Board for Scotland. "The stages of change model and its use in health promotion: a critical review." 2000.
 7 Bandura A. "The anatomy of stages of change." *American Journal of Health Promotion:* 1997, 12 (1), p. 8–10.
- **8** Bandura A. "Health promotion from the perspective of social cognitive theory." *Psychol. and Health*: 1998, 13, p. 4.
- **9** Sutton S., et al. "Back to the drawing board? A review of applications of the transtheoretical model to substance use." Addiction: 2001, 96, p. 175–186.
- **10** Sutton S. "Can 'stages of change' provide guidance in the treatment of addictions? A critical examination of Prochaska and DiClemente's model." In: Edwards G., et al, eds. Psychotherapy, psychological treatments and the addictions. Cambridge Univ. Press, 1996, p. 189–205.
- **11** Prochaska, J.O., DiClemente C.C. "Stages and processes of self-change of smoking: toward an integrated model of change." *Journal of Consulting and Clinical Psychology*: 1983, 51, p. 390–395.
- **12** Prochaska, J.O., DiClemente C.C. "Toward a comprehensive model of change." In: Miller W.E., et al, eds. Treating addictive behaviors. Plenum Press, 1986, p. 3–27.
- **13** DiClemente C.C., Prochaska, J.O. "Toward a comprehensive transtheoretical model of change." In: Miller W.E., et al, eds. Treating addictive behaviors. Plenum Press, 1998, p. 3–24.
- **14** DiClemente C.C. "Motivation for change: implications for substance abuse treatment." *Psychological Science*: 1999, 10(3), p. 209–213.
- 15 Miller W.R., et al. Motivational enhancement therapy manual: a clinical research guide for therapists treating individuals with alcohol abuse and dependence. Project MATCH Monograph Series, Volume 2. 1995.
- **16** Kubler-Ross E. *On death and dying*. Macmillan, 1969. **17** Hall, W., *et al.* "Stages in the development of black awareness: an exploratory investigation." In Jones R., *ed. Black psychology*. Harper & Row, 1972, p. 101–103.
- **18** Parkes C.M. *Bereavement: studies of grief in adult life*. New York: International Universities Press, 1972.
- **19** Tuchfield B. Changes in the patterns of alcohol use without the aid of formal treatment. Research Triangle Institute, 1976.
- **20** Kanfer F.H., *et al.* "Managing clinical change: a process model of therapy." *Beh. Modification*: 1980, 4, p. 419–444.
- **21** Marcus B.H., *et al.* "The stages and processes of exercise adoption and maintenance in a worksite sample." *Health Psychology*: 1992, 11(6), p. 386–395.
- **22** Norcross J., Prochaska J., DiClemente C. "The stages and processes of weight control: two replications." *Obesity*: 1995, 41, p. 172–184.
- **23** Strecher V., et al. "The effects of computer-tailored cessation messages in family practice settings." *Journal of Family Practice*: 1994, 39, p. 262–270.
- **24** Skinner C., et al. "Physicians' recommendations for mammography: do tailored messages make a difference? American Journal of Public Health: 1994, 84, p. 43–49
- **25** Bowen A., *et al.* "HIV risk in intravenous drug users and crack cocaine smokers: predicting stage of change for condom use. *J. Consult. Clin. Psychol.*: 1995, 63, p. 238–248.

- **26** Farkas A.J., *et al.* "Addiction versus stages of change models in predicting smoking cessation." *Addiction*: 1996 91(9), p. 1271–1280.
- **27** Rollnick S., *et al.* "Development of a short 'readiness to change' questionnaire for use in brief opportunistic interventions amongst excessive drinkers." *British Journal of Addiction*: 1992, 87, p. 743–754.
- **28** Carbonari J.P., DiClemente C.C., et al. "A readiness to change measure." AABT National Meeting, California, November 1994.
- **29** Carbonari J.P., DiClemente C.C., *et al.* "Alternate short forms of the alcohol readiness to change scale." Fourth International Congress on Behavioral Medicine, March 1996.
- 30 Cooper S. Individual differences. London: Arnold 1997.
- **31** Cattell R. *Personality and mood by questionnaire*. San Francisco: Jossey Bros, 1971.
- **32** Norman G.J., et al. "Cluster subtypes within stage of change in a representative sample of smokers." *Addictive Behaviours*: 2000, 25(2), p. 183–204.
- **33** DiClemente C.C, et al. "Stages of change profiles in outpatient alcoholism treatment." *J. Subst. Abuse*: 1990, 2. p. 217–235.
- **34** Stockwell T. "Models of change, heavenly bodies and weltanschauungs." *Brit. J. Addict*.: 1992, 87(6), p. 830–832.
- **35** DiClemente C.C., *et al.* "Stages of change: interactions with treatment compliance and involvement." In: Onken L.S., *et al*, *eds. Beyond the therapeutic alliance: keeping the drug-dependent individual in treatment.* US National Institutes of Health, 1997.
- **36** Prochaska J.O., DiClemente, C.C., *et al.* "In search of how people change: applications to addictive behaviours." *American Psychologist*: 1992, 7, p. 1102–1114.
- **37** Orford J., et al. "Drinking amongst medical patients: level of risk and models of change." *British Journal of Addiction*: 1992, 87(12), p. 1691–1703.
- **38** Prochaska J.O., et al. "Patterns of change: dynamic typology applied to smoking cessation." *Multivariate Behavioral Research*: 1991, 26, p. 83–107.
- **39** Cunningham J.A., et al. "Why do people stop their drug use? Results from a general population sample." *Contemporary Drug Problems*: 1999, 26, p. 605–710.
- **40** Walters G.D. "Spontaneous remission from alcohol, tobacco and other drug abuse: seeking quantitative answers to qualitative questions." *American Journal of Drug and Alcohol Abuse*: 2000, 26(3), p. 443–460.
- **41** Toneatto T., et al. "Natural recovery from cocaine dependence." *Psychol. Addict. Beh.*: 1999, 13(4), p. 259–268.
- **42** They also point out that about half the sample were in the action or maintenance stage at the start of the two years so could not have progressed three stages further.
- **43** Edwards G., et al. "Hearing the noise in the system. Exploration of textual analysis as a method for studying change in drinking behaviour." *Brit. J. Addict.*: 87, p. 73–81.
- **44** Hernandez-Avila C.A., et al. "Stage of change as a predictor of abstinence among alcohol-dependent subjects in pharmacotherapy trials." Subst. Abuse: 1998, 19(2), p. 81–91.
- **45** Project MATCH Research Group. "Matching alcoholism treatments to client heterogeneity: Project MATCH three-year drinking outcomes." *Alcoholism: Clinical and Experimental Research*: 1998, 22 (6), p. 1300–1311.
- 46 Cited in reference 1.
- **47** Time to first cigarette of the day, whether smoking daily and how many, history of guit attempts.
- **48** Prochaska J.O., *et al.* "On models, methods and premature conclusions." *Addiction*: 1996 91(9), p. 1281–1282.
- **49** Hughes J.R. "My dad can predict better than your dad: so what?" *Addiction*: 1996, 91(9), p. 1284-1285.
- **50** Shiffman S. "'Addiction versus stages of change models' vs. 'Addiction and stages of change models'." *Addiction*: 1996, 91(9), p. 1289-1290.
- **51** Schmid H., *et al.* "Predictors of smoking status after eight years: the interaction of stages of change and addiction variables." *Psychol. & Health*: 1999, 14, p. 731–746.
- **52** De Vries H. *et al.* "Self-efficacy as an important determinant of quitting among pregnant women who smoke: the Opattern." *Preventative Medicine*: 1994, 23, p. 176–178.
- **53** Herzog T.A., et al. Do processes of change predict stage movements? Society of Behavioural Medicine, 1997.
- **54** Fisher E.B. "Prediction, causation and natural history of smoking cessation." *Addiction*: 1996, 91(9), p. 1285–1287.
- **55** Heather N., et al. "Effects of brief counselling among male heavy drinkers identified on general hospital wards." *Drug and Alcohol Review*: 1996, 15, p. 29–38.
- **56** Monti P.M., *et al.* "Brief intervention for harm reduction with alcohol-positive older adolescents in a hospital emergency department." *J. Consult. Clin. Psychol.*: 1999, 67(6).
- **57** Heather N. "Addictive disorders are essentially motivational problems." *Brit. J. Addict*.: 1992, 87, p. 828–830.