

References

1. Fottrell E. A study of violent behaviour among patients in psychiatric hospitals. *B J Psych* 1980; 136: 216-21.
2. Wyatt JP, Watt M. Violence towards junior doctors in accident and emergency departments. *J Acc Emerg Med* 1995; 12: 40-2.
3. Cembrowicz SP, Sheperd JP. Violence in the accident and emergency department. *Med Sci Law* 1992; 32(2): 118-22.
4. Schwartz TL, Park TL. Assaults by patients on psychiatric residents: a survey and training recommendations. *Psychiatr Serv* 1999; 50(3): 381-3.
5. Walker Z, Seifert R. Violent incidents in a psychiatric intensive care unit. *B J Psych* 1994; 164: 826-8.
6. Aquilina C. Violence by psychiatric in-patients. *Med Sci Law* 1991; 31(4): 306-12.
7. Steadman HJ, Mulvey EP, Monahan J et al. Violence by people discharged from acute psychiatric inpatient facilities and by others in the same neighbourhoods. *Arch Gen Psychiatry* 1998; 55: 393-401.
8. Scott H, Johnson S, Menezes P et al. Substance misuse and the risk of aggression and offending among the severely mentally ill. *Br J Psychiatry* 1998; 172: 345-50.
9. Swanson J, Borum R, Swartz M, Hiday V. Violent behavior preceding hospitalisation among persons with severe mental illness. *Law Hum Behav* 1999; 23(2): 185-204.
10. Larkin E, Murtagh S, Jones S. A preliminary study of violent incidents in a special hospital (Rampton). *B J Psych* 1988; 153: 226-31.
11. Ball JC, Rosen L, Flueck JA, & Nurco DN. Lifetime criminality of heroin addicts in the United States. *J Drug Issues*, 1982; 12: 225-9.
12. Kouri EM, Pope HG, Powell KF, Oliva PS, Campbell C. Drug use history

- and criminal behavior among 133 incarcerated men. *Am J Drug Alcohol Abuse* 1997; 23(3): 413-9.
13. Hanlon TE, Nurco DN, Kinlock TM, Duszynski KR. Trends in criminal activity and drug use over an addiction career. *Am J Drug Alcohol Abuse* 1990; 16: 223-38.
14. Tardiff K, Marzuk PM, Leon AC, Portera L, Weiner C. Violence by patients admitted to a private psychiatric hospital. *Am J Psychiatry* 1997; 154(1): 88-93.
15. Cuffel BJ, Shumway M, Chouljian TL, MacDonald T. A longitudinal study of substance use and community violence in schizophrenia. *J Nerv Ment Dis* 1994; 182: 704-8.
16. Swartz MS, Swanson JW, Hiday VA, Borum R, Wagner HR, Burns BJ. Violence and severe mental illness: the effects of substance abuse and nonadherence to medication. *Am J Psych* 1998; 155(2): 226-31.
17. James DV, Fineberg NA, Shah AK, Priest RG. An increase of violence on an acute psychiatric ward; a study of associated factors. *B J Psych* 1990; 156: 846-52.
18. Haller RM, Delury RH. Assaults on staff by psychiatric in-patients – a critical review. *B J Psych* 1988; 152: 174-9.
19. D'Orban P. Female offenders. In: Gunn J, Taylor P (eds). *Forensic Psychiatry – Clinical, Legal and Ethical Issues*. Butterworth Heinemann 1993: 600.
20. Brooner RK, Bigelow GE, Srain E, Schmidt CW. Intravenous drug abusers with antisocial personality disorder: increased HIV risk behavior. *Drug Alcohol Depend* 1990; 26(1): 39-44.
21. Awalt RM, Reilly PM, Shopshire MS. The angry patient: an intervention for managing anger in substance abuse treatment. *J Psychoactive Drugs* 1997; 29(4): 353-8.

LETTERS TO THE EDITOR

Ir J Psych Med 2000; 17(1): 33-34

Classical and operant conditioning: which model applies to pad and bell training for nocturnal enuresis in children?

Sir – Pad and bell training is an example of operant conditioning. True or false? This is a typical question from the membership exams in psychiatry.

The question is much more difficult to answer than it seems at first. It seems easy because classical and operant conditioning have fairly clear definitions which are illustrated in psychology text books with easily conceptualised examples.

In one text¹ the definitive feature of classical conditioning is that, “the originally neutral conditioned stimulus, through repeated pairing with the unconditioned one, acquires the response originally given to the unconditioned stimulus”.

Operant conditioning in the same text is, “the strengthening of an operant response by presenting a reinforcing stimulus, if and only if the response occurs”.

Classical conditioning was described first and is associated with Pavlov who demonstrated that dogs can be caused to salivate to the sound of a bell if food is provided. Operant conditioning is associated with Skinner who trained rats to press a bar to obtain food.

If the distinction is so clear, how could we ever get the two mixed up? The problem is that it is easy to reformulate the two types of conditioning. We can argue that in classical conditioning there is an operant component and in operant conditioning a classical component.

Take Pavlov's dog from which the description of classical conditioning arose. To be provocative, couldn't we say that the dog is being trained to salivate in response to the bell by being rewarded with meat?

Or consider the rat in the Skinner box which must depress a lever to obtain a few grains of food. Isn't the neutral conditioned stimulus of depressing a lever being paired with the unconditioned stimulus of food, so that through association the expectation of food is generated by pressing the lever?

Is it important that one includes an involuntary process, salivation and the other a voluntary one, pressing a lever? We have to decide whether the distinction is based on the nature of the behaviour (whether it is action or reflex) or whether it is the pattern of association in time that is important. Which will take priority if there is a discrepancy between the two?

We could say that Skinner's rat demonstrates operant conditioning because its behaviour is an action upon the world or we could say that it is operant because the depression of the bar gives rise to the delivery of the food, ie. the initiative precedes the rewarding stimulus. In this instance there is no cause for debate because both definitions reach the same conclusion. The problem arises when they reach divergent conclusions.

Imagine a natural reflex such as salivation. If this was rewarded whenever it occurred spontaneously then it is conceivable that its frequency would increase. If this did occur we could label it as classical because it was originally a reflex or we could label it as operant because the action precedes and gives rise to the reward.

According to the standard text mentioned above¹ the determinant is whether the behaviour itself is respondent or operant (ie. reflex or action):

“To understand operant conditioning, we need to distinguish between what Skinner called respondent and operant behaviour. Respondent behaviour is a direct response to a stimulus, as in the unconditioned responses of classical conditioning: the flow of saliva in response to food in the mouth, the constriction of the pupil in response to a flash of light on the eye, the knee jerk in response to a tap on the patellar tendon.

In contrast, operant behaviour simply happens; that is it appears to be spontaneous, rather than a response to a

specific stimulus. For example, alone in a crib a baby may twist and coo spontaneously, in response to nothing in particular.

When left alone in a room, a dog may pad back and forth, sniff, perhaps pick up a ball drop it and play with it. Neither is responding to stimuli in the outside world. They are operating on the world."

There is no mention of temporal priority. This is unfortunate because temporal priority is easy to establish. To decide whether something is respondent or operant (reflex or action) is a harder task. Consider blinking and urination which can be either.

In consequence, if we reject the temporal criterion then we will be left with three categories, as follows: firstly those where the behaviour is classical, secondly where it is operant and thirdly those where the conditioned behaviour has both classical and operant components.

In another text² no definition for classical conditioning is given, only the example of a child ('little Albert') associating a loud noise (unconditioned stimulus) with the appearance of a rat (conditioned stimulus). In operant conditioning "making reinforcement contingent upon a response increases the rate of emission of that response".

The example is drawn from an experiment by Keehn (1967) in which students were trained to increase their frequency of blinking without being aware of it.

So this text emphasises the pattern of the association in time rather than whether the response is an action or a reflex.

Let us go with the second definition which prioritises the association in time. What about pad and bell training? The first thing to touch upon is that it is aversive. However there is nothing in the description of classical and operant conditioning to indicate that they would not apply to punishment. Indeed the example of 'little Albert' for classical conditioning provided in the second text above is aversive.

Even using the pattern of temporal association it is still difficult to say which type of conditioning applies to pad and bell training. The problem is that both types of conditioning could apply to a successful outcome. Supposing the child urinates (conditioned stimulus) and wakes up because of the alarm (unconditioned stimulus) and then after a while awakens because of the impetus to urinate, then this is indistinguishable from other examples of classical conditioning.

The events for instance could enter into one to one correspondence with the events in Pavlov's experiments with dogs.

Or supposing the child urinates and wakes up because of the alarm. Then it is just as true to say that the punishment of awakening is dependent on the act of urinating. So the child stops urinating at night and thereby avoids the punishment. This is indistinguishable from other examples of operant conditioning on the aversive model.

The conditioning process could be either classical or operant. It would be classical if the neutral stimulus of voiding came to be associated with an aversive stimulus leading to wakefulness and it would be operant if it was thereby avoided.

Which explanation applies depends on the individual child. If anecdotal accounts are correct then most children successfully treated with the pad and bell treatment sleep through the night without voiding which can therefore be explained in terms of operant conditioning.

Colin Dewar,
24 Elmwood Gardens,
Lenzie,
Glasgow G66 4EW,
Scotland.

References

1. Introduction to Psychology. Hilgard RE, Atkinson RL, RC Harcourt. Brace Jovanovich, Inc.
2. Seminars in Psychology and the Social Sciences. Tantram D, Birchwood M (eds). Royal College of Psychiatrists.

Heavy general hospital case notes

Sir – The article Heavy general hospital case notes: a simple case-finding method for psychiatric problems by Williams CJ, House A, Holmes J, Stewart A¹ is very interesting.

I would suggest that a further study to determine the actual types of admissions and whether the types of admission are repetitive for the same organ system or disease process would be helpful for the non-psychiatrist, psychologist in dealing with repetitive patient.

The authors obviously provide a very thought-provoking and well written paper, and it would be interesting to see a continuation of this type of research.

John J O'Connor,
Diplomatic American Board
Colon and Rectal Surgery,
11125 Rockville Pike 308,
Rockville,
Maryland 20852,
USA.

1. *Ir J Psych Med* 1999; 16(4): 123-6.

Letters to the Editor

should be addressed to:

The Editor

Irish Journal of Psychological Medicine

25 Adelaide Street

Dun Laoghaire

Co Dublin.

Fax: 01-280 7076

Email: psychological@medmedia.ie