Noncontingent reinforcement is an empirically supported treatment for problem behavior exhibited by individuals with developmental disabilities

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CRD summary
The review concluded that fixed time reinforcer delivery (plus extinction and schedule thinning) was the most efficacious treatment identified for behavioural problems in individuals with developmental disabilities. Reporting of the review process was poor. The conclusion is likely to be reliable, but the lack of data for alternative treatments prevented their accurate assessment.

Authors’ objectives
To quantitatively analyse and classify the empirical support for non-contingent reinforcement (NCR) as a treatment for problem behaviour in individuals with developmental disabilities, using Division 12 Task Force guidelines.

Searching
PsycINFO, ERIC, MEDLINE and Journal of Applied Behavior Analysis databases were searched. Literature reviews were searched. Search terms were listed. Search dates were not reported.

Study selection
Studies that implemented non-contingent reinforcement as a treatment for problem behaviour in individuals diagnosed with developmental disabilities were eligible for inclusion. Studies were reversal design, multiple-baseline design and reversal design with embedded alternating treatment design. Studies were excluded if non-contingent reinforcement was a control procedure or implemented as part of a treatment package with an intervention other than extinction. The main outcomes of interest were functional analysis, treatment and type of problem behaviour. Mean age of participants was 18.1 years (range three to 56) and 42.9% were female and 57.1% were male. Most participants were diagnosed with mental retardation (81.6%). Other diagnoses were autism or pervasive developmental disorder. The most common behavioural problems were self-injurious behaviour and aggression. Treatments were fixed or variable time, with or without additional extinction and schedule thinning.

The authors did not state how many reviewers performed the selection.

Assessment of study quality
The authors did not state that they assessed validity.

Data extraction
A variety of categories were coded, as reported. Problem behaviour was graphed for treatment versus control. A clear decrease in problem behaviour due to treatment was coded as effective. Effect size was calculated using percentage of non-overlapping data (PND) and mean baseline reduction (MBLR) for each participant's data. For reverse design, the last replication of the baseline and treatment phase were used to calculate the effect. For alternating treatment, non-contingent reinforcement data and the corresponding baseline path were used and for multiple baseline design the baseline and treatment data for each participant were used to generate effect size. If exposed to more than one treatment, participants were counted multiple times within a category. To comply with definitions of function based treatments and Task Force criteria, data were excluded from further analysis if behaviour function was unidentified or was automatic reinforcement.

The authors stated that coders agreed and resolved scores, but did not report the number of coders.

Methods of synthesis
Treatments were classified as well established if nine studies could demonstrate efficacy. A classification of probably efficacious was given if supported by three to eight studies and experimental if supported by two studies and fewer.
Results of the review
Twenty four studies (n=49) were included.

Fixed time treatments (21 studies, n=46): Fixed time reinforcer delivery (plus extinction and schedule thinning) was classified as well established (11 studies, n=25). Fixed time delivery (plus extinction) was classified as probably efficacious (eight studies, n=15). Fixed time reinforcer delivery (two studies, n=5) and fixed time (with schedule thinning) were classified as experimental (one study, n=2).

Variable time treatments (three studies, n=7): Variable time reinforcer delivery (plus extinction) was classified as probably efficacious (three studies, n=7). No studies were identified which studied variable time alone or plus schedule thinning or plus extinction and schedule thinning.

Authors' conclusions
Fixed time reinforcer delivery (plus extinction and schedule thinning) was classified as well established. Fixed time reinforcer delivery (plus extinction) and variable-time reinforcer delivery (plus extinction) were classified as probably efficacious.

CRD commentary
The review question and inclusion criteria were clear. A number of relevant databases were searched for studies. It was unclear which dates were searched and whether there were language restrictions. No attempts were made to locate unpublished studies, so publication bias may have occurred. Details of the review process and study quality were poorly reported and so susceptibility to error and bias could not be assessed. The analysis seemed appropriate. The lack of studies for some treatments did not allow reliable conclusions to be drawn. The overall conclusions reflect the evidence presented, but should be treated cautiously.

Implications of the review for practice and research
Practice: The authors did not state any implications for practice.

Research: The authors did not state any implications for research.

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