

The Effects of Admitting Chronic Patients to a Factory Unit for One Month

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Twenty chronic patients, group 1, entered a hospital factory unit for one month and received varying increases of pay. They were compared with three control groups, each of ten patients. Thus group 2 received increases of pay similar to those of the group entering the factory, but remained outside the factory unit. Another, group 3, had already been in the unit for several months, and were discharged from the unit into other hospital employment for one month without change of pay. Another, group 4, remained in the factory throughout with no change of pay. Forty per cent. of each group was female. The control groups were matched with group 1 for age, duration of stay and group test results. Ranges and averages were: age, gp. 1, 36-66, 52.1, gp. 2, 34-65, 50.1, gp. 3, 38-68, 50.5, gp. 4, 21-63, 46.1; duration of stay, gp. 1, 1-35, 17.6, gp. 2, 3-27, 14.0, gp. 3, 2-32, 12.6, gp. 4, 2-27, 13.9 years. The distribution of patients between hospital wards was the same in each group. Eighty per cent. of each group had a diagnosis of chronic schizophrenia. Eight patients from group 1 and four from each of the control groups took part in an additional group discussion with one of the experimenters during the month trial period. A list of different topics were worked through, e.g. driving, smoking, taking risks, etc., and photographs from the 1963 Year Book and coloured advertisements were used, preferences and associations being asked for with each topic.

Observations were via ward ratings, a tape recorded standard interview, and group tests, digit symbol and figure drawing. They extended over an eight week period from two weeks before the month trial period to two weeks after. The ward ratings were based on "concrete" items of behaviour which were selected in consultation with nursing staff, and involved manageability and activity. The manageability section included, for example, whether the patient had to be told to get up, comb his hair, and tie his shoe laces, and whether he wandered away from the ward. The activity section included, for example, whether a second helping was asked for at meal times, and tea bought in the canteen. Each item was scored "yes" or "no" or "no opportunity for ob-

servation" each day, by charge nurses. The tape recorded interview included a standard interview devised by Baker and Thorpe with some additional questions. The first section was scorable for adjustment, on the basis of objective criteria suggested by Baker and Thorpe.

The interview recordings were played off in pairs in front of an audience of nurses who had instructions to say which of the two recordings of a patient showed better adjustment. The eight figure drawings from each patient were assembled together and ranked for adjustment of the patient by the nurses. Rotated orders were used with the tape recording play-offs and in assembling the figure drawings so as to minimize contaminating effects.

Some researchers studying factory units have kept the data from different measuring devices separate. As ratings, interviews and tests each tend to be subject to their own systematic errors, it is fairest to combine all the data. However, to do this one is forced to use some arbitrary scheme. To obtain a measure of "temporary benefit" the formula $u = (p - q) / (p + q)$ was used where p was the number of comparisons favourable to the hypothesis that the patient was better adjusted in the month trial period than in the two fortnights before and after, and q was the number unfavourable. For example, the ward ratings of each patient were studied to see whether the percentage of days scored "needs to be told to get up" was less in the experimental period than in the fortnights preceding and following. If so this contributed 1 to p , if the reverse held it contributed 1 to q . Values of u were worked out for ward ratings, Baker and Thorpe's scale, the interview recordings, the figure drawings and the digit symbol test. The same u measure was used to compare the fortnight preceding treatment with that following to see if there had been a "before-after" benefit, and to compare the first and second halves of the month trial period, to see if there was a "gradual improvement" during the month. With all three sorts of u measures there was a statistically significant degree of agreement between the ward ratings, interviews and group tests as to which people had shown change.

For each of the three different sorts of comparison, "temporary benefit", "before-after effect" and "gradual improvement", the data were combined to give weighted mean u values. The advantage of using u is that it minimizes the effects of differences between subjects and any defects of matching the groups. One disadvantage of using u is that when p and q are small, u tends to be large in magnitude, approaching $+1$ or -1 . This made it imperative to introduce some method of reducing the weighting given to a u value when p and q were small, as sometimes happened with ward ratings. Secondly, with the digit symbol test, with the "before-after" effect, u was mostly near to $+1$, and was much higher than other u values. Thirdly some patients occasionally successfully evaded interviews and group tests. This meant that the methods of weighting u from different sources became somewhat complicated. The methods of averaging u were decided upon after inspecting the raw data and before any statistical work was attempted.

The overall average value of u for "temporary benefit" in group 1 (0.16) was slightly higher than that in the control groups 2, 3 and 4 (0.09, 0.06 and 0.08 respectively) but it was not possible to demonstrate statistically significant differences. The overall value of u for the "before-after" effect in group 1 (0.28) was very slightly higher than that in the control groups 2, 3 and 4 (0.21, 0.26 and 0.14 respectively) but there were again no significant differences. The highest value of u for the "before-after" effect was earned by the eight patients of group 1 who had the additional group discussion

(0.35) and this was nearly significantly better than in group 4 ($p < .10$ two tail Mann Whitney U test).

Significant rank correlations were obtained within group 1 between "temporary benefit" and duration of stay in hospital ($p < .05$ all patients, $p < .01$ women alone) and a negative relationship appeared between "temporary benefit" and Progressive Matrices scores ($p < .05$). One might interpret this result as a gain in morale in the lower grade long-stay patient entering the factory. On the other hand, the "gradual improvement", the comparison of the second fortnight in the factory with the first, was greater for the younger ($p < .05$) shorter stay ($p < .01$) patient. This suggests that only the younger, shorter stay patients were showing the gradual improvement which might contribute to a long-term rehabilitation programme.

Interesting additional findings were that there were no significantly positive correlations between measures of "temporary benefit", the "before-after" effect and the "gradual improvement" in these groups, with this brief one month admission period.

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REFERENCES

- BAKER, A. A., and THORPE, J. G. (1956), "Some simple measures of schizophrenic deterioration." *J. Ment. Sci.*, 102, 838-846.

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