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DISTURBED BEHAVIOUR AND MOON PHASES

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(with two tables and two text-figures)

ABSTRACT

Data upon the behaviour of hyper-reactive male adolescents in care is reviewed against lunar phase to assess whether human bio-rhythmic patterns seem to be influenced by this form of extra-terrestrial cyclic change. Statistical tests suggest some correlation between attitude or behaviour patterns and days with the moon in the full phase.

INTRODUCTION

The existence of a temporal relationship between the behaviour of mentally disturbed persons and the phases of spatial arrangements between the earth and moon has been commonly believed through history (Oliver 1943) and gives rise to the etymology of the word "lunatic". Recent studies have tended to find contradictory evidence concerning the effect. In homicide a significant correlation has been demonstrated from one U.S. area (Lieber and Sherin 1972) but in psychiatric emergencies the effect has not been found (Bauer and Hornick 1968). It has always been difficult to prove or to disprove the hypothesis because comparable data of sufficient cases over long periods are generally needed. Most commonly the scientific conclusion has been merely that the figures have not supported any relationship of behaviour with moon phases. Conclusive denial of an effect is also lacking, and so the hypothesis lingers unproven in the limbo between superstition and old wives' tale.

The Tasmanian (State) Department of Social Welfare, assumes responsibility, as a result usually of court action for an ever-changing number of boys whose homes are unable for a wide variety of reasons to care for them. These boys include children of single parents or of grossly inadequate parents; some have been in minor police trouble, many are slow-learners or come to the department emotionally disturbed to a greater or lesser extent. It should be stressed that these boys are not criminals nor are they necessarily educationally sub-normal, though a few have received brain-damage at birth. Their existence reflects upon us all for they are more socially sinned against than sinners. In common these boys have a need for love, orderliness and security that most of them have never known.

One residential home for these boys is "Westwinds" in southern Tasmania. The home is staffed by eight permanent full time adults, receives boys from all over the State (viz. up to about 300 km distant) in the age group 7 to 16 and accommodates up to 20 boys at any one time. The regime deliberately sets out to provide a relaxed atmosphere, free of tension in either staff or boys. The boys may attend the local school, wander in the grounds and local countryside and they have opportunity for visits, holidays and day-trips away. In spite of these intentions, the boys make up a naturally volatile, emotional and moody group particularly easily affected by outside influences or changes in their life patterns. If lunar influence were felt in human affairs, these hyper-reactive boys would be expected to form a suitable test

Disturbed Behaviour and Moon Phases

situation for its recognition. Furthermore, with an all-male test group, hormonal and menstrual rhythms of attitudinal response could be ignored. The boys at "Westwinds" might thus provide evidence of external effects upon behaviour at a non-criminal level and of a less extreme kind than the serious violence of other studies. Formalised, the single tail null hypothesis would state that no significant behavioural worsening could be detected with periods of full moon.

DATA

Ranked information about the "behaviour" and the "attitude" of 18 boys resident at "Westwinds" was analysed for the period between March 1973 and June 1974 providing data coverage for nearly 12,000 boy/days.

"Attitude" was defined as the ability to reach acceptance of instruction, and "behaviour" as an ability to live with and adapt to events external to oneself. Records were based upon the confidential judgement of the duty staff member for the day concerned in complete absence of any idea upon his part of future use to test a lunar hypothesis. Indeed the recording system was instituted originally for the guidance of visiting psychiatrists in prescribing medication and gauging its effectiveness. Lunar phase was not recorded on the boys' records and was added retrospectively. No possibility existed of lunar phase prejudicing the rank of behaviour or attitude awarded.

ANALYSES

For each method of testing, "full moon-days" were defined as the three day period straddling full-moon to include the day before and day after.

(i) Attitude and Behaviour against Moon Phases

The total boy/days recorded for attitude were 6230, of which 1702 (27%) were shown as rating one of the two attitude ranks below norm. These were 1279 days at -1 rank and 423 days at -2. Of these 6230 days 617 were full moon days of which 412 (67%) recorded normal behaviour, 156 (25%) full moon days were at -1 level and 49 days (8%) at -2 level of attitude but these two ranks were combined for analysis. Chi-squared testing of these data shows a significant association in time ($p < 0.001$) between rank scores for sub-normal attitude and full moon days (See Table I). That is the proportion of days rated subnormal for attitude is significantly higher when the moon is full.

TABLE I

Boys' Attitude Rankings and Lunar Phase

	Normal	Sub-Normal
Full Moon days	412 (66.8%)	205 (33.2%)
Other days	4116 (73.3%)	1497 (26.7%)

χ^2 with Yates' Correction = 11.70 at 1 d.f. $p < .001$

N.D. McGlashan and T.R. Hay

TABLE II

Boys' Behaviour Rankings and Lunar Phase

	Normal	Sub-Normal
Full Moon days	389 (69.7%)	169 (30.3%)
Other days	3709 (73.3%)	1349 (26.7%)

χ^2 with Yates' Correction = 3.15 at 1 d.f. $0.05 < p < 0.10$

An exactly similar analysis of behaviour rankings against moon phases is summarised in Table II. Whilst this set of data just fails to reach the significance level of $p = 0.05$ it is broadly corroborative of the finding in Table I.

(ii) Correlation of Behaviour and Attitude

As would be expected, the order of agreement of ranks of the eighteen boys, by percentage of days below norm, is extremely high ($p < 0.01$ on Spearman's Rho Test) between the two parameters of behaviour and attitude. The "good" boys are good on both parameters generally and the "bad" similarly. The point illustrates consistency in rank awarding practice by varying staff and to varying boys during the period studied.

When the "better" half of the group of 18 boys was removed, as suggested by Bauer and Hornick (1968), no significant relationship was found amongst the 9 "worse" boys between attitude rank and full moon days or between behaviour rank and full moon days. The difference between the "worse" and the "better" halves of the boys is slight; for example, the worse had only 3% more days ranked as below normal for attitude. It is clear that the fuller tabulations including all the boys are necessary to detect these slight differences.

(iii) Monthly Cycles of Attitude and Behaviour

As an alternative method of approach figs. 1 and 2 show the full daily variations of each parameter against the phase of the moon. The number of days recorded varied considerably (from 168 thirteenth days after new moon to 245 twenty-sixth days after new moon) because of irregular breaks in the record for holidays and other absences. All counts of days were therefore expressed in percentages to provide easy visual comparability.

For each graph, confidence limits at +2 and -2 standard deviations have been added, and in each case a trough in "normal" ranking must, of course, produce a peak in ranks less than normal, although not necessarily evenly in each of the sub-normal ranks.

Whilst normal attitude (top graph of fig. 1) is clearly achieved less often about the full moon, it is also less often reached about the twenty-second day. In neither case does the variation from the mean (72.8% of all days being normal) reach significant proportions. Conversely the apparent peaks of -1 rank of attitude and of -2 rank of attitude do not attain significance compared with their respective ± 2 s.d. values depicted. Thus these daily variations could be the result of chance.

The graph concerned with behaviour (fig. 2) shows rather less consistency. For example, day 21 appears as a virtuous day with a peak of normal behaviour and low troughs of both -1 and -2 ranks below normal. Conversely day 26 has fewer normal and more sub-normal behaviour days. In each case, however, there is no temporal corroboration from consecutive days nor is there any suggestion of a group of days with a fixed pattern of behaviour occurring with regularity at any phase of the lunar month.

Disturbed Behaviour and Moon Phases

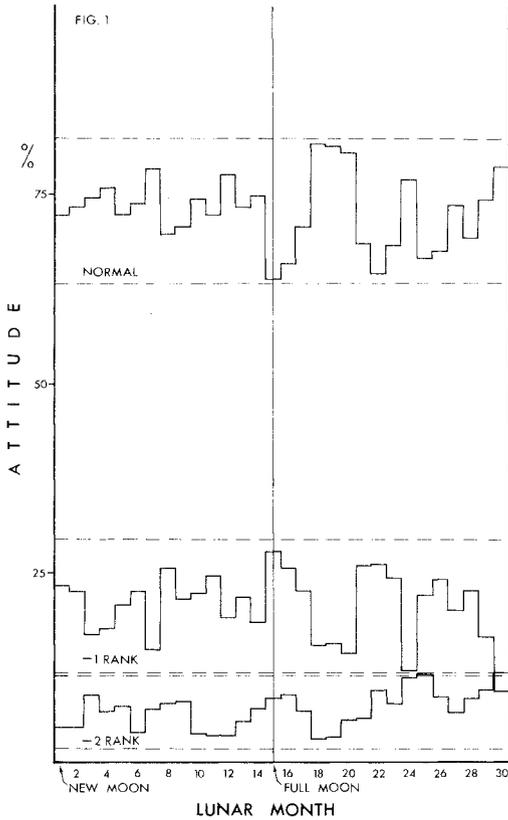


FIG. 1.- Attitude variation with lunar phase

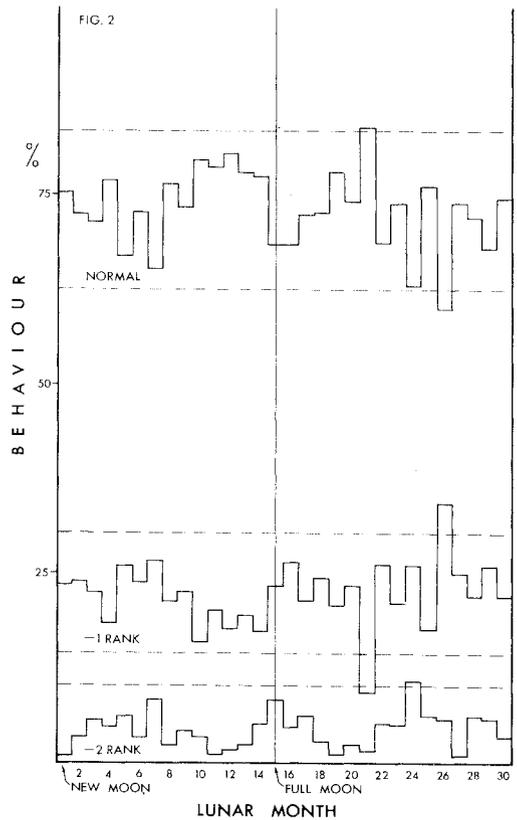


FIG. 2.- Behaviour variation with lunar phase

CONCLUSION

Only the first of these tests suggests that these boys' attitudes or behaviour patterns are affected on days with the moon in the full phase. The initial null hypothesis is tentatively rejected in that case. This disagrees basically with the failure of Shapiro *et al* (1970) to confirm any effect of lunar phase. There is, however, no apparent difference in the way that different groups of boys, grouped respectively by attitude and by behaviour, react to phases of the moon. The total number of boy/days examined (11,846 in Tables I and II), even when divided into two halves, would be expected to suffice to show a tendency to differ if such existed. The question of whether this lunar effect upon human biorhythm is induced by moonlight itself or alternatively by the moon's gravitational influence upon bodily tides (Oliver 1943) becomes relevant only once the effect itself is accepted.

ACKNOWLEDGEMENT

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