

# Correlations of the Physical Symptoms of Hypoglycemia with the Psychological Symptoms of Anxiety and Depression

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## Introduction

Most professional psychologists consider symptoms of anxiety and depression to be brought on by stress and pressures of everyday living as well as the Freudian concept of past familial relationships. In other words, most psychologists, as well as psychiatrists, assume that anxiety and depression are psychological symptoms brought about by the individual's relationship with their environment. However, the new field of Orthomolecular Medicine in conjunction with "The New Nutrition" is demonstrating that these symptoms can be brought about by brain chemistry which is largely controlled by diet. Research described in this paper is a step towards documenting that concept.

One form of hypoglycemia (sometimes termed hyperinsulinism) is an overreaction of the pancreas to produce an overabundant supply of insulin in response to elevated blood sugar. Dr. Seale Harris was the first to notice the effects of insulin overdose in the 1920's. In his study of diabetics he found that blood sugar would plummet to extremely low levels and symptoms such as weakness, coldness, nervousness, fainting and sometimes convulsions would result until the patient was given sugar. In his non-diabetic patients he found the same symptoms. He tried treating some of the patients by administering a sugar solution orally. He soon discovered that the blood sugar did not rise but eventually dropped even *lower* after the sugar intake.

Low blood sugar ... reactive hyperinsulinism, one of the most often misdiagnosed disorders, has been called the 'Great Imitator'. It has been known to imitate or cause disorders such as insomnia, fatigue, chronic

indigestion, hypochondriasis, nightmares, unjustified fears and intolerable anxiety and depression. It can turn a healthy, normal and active individual into a psychiatric wreck (Fredericks, 1969).

There are basically three types of hypoglycemia. Two of the types of hypoglycemia involve tumors of the pancreas on the Islets of Langerhans. The third type of hypoglycemia, reactive (functional) hypoglycemia, is due to a diet high in refined carbohydrates. The refined carbohydrates cause a rapid rise in blood sugar, triggering an excess of insulin secretion from the pancreas. This drops the blood sugar quickly to an abnormally low level (1969).

Dr. S. Gyland studied several hundred patients with low blood sugar. He listed the frequency of several symptoms with depression occurring in 77% of the patients and worrying and anxiety in 62% of the patients. Many of the illnesses complained about are thought to be "all in the mind" of the individual or psychosomatic disorders. These individuals are then misled into believing that they need psychiatric consultation. In a restudy of 115 patients who were referred for psychological treatment on the basis of diagnosis by exclusion, all 115 on competent, careful reexamination were found to have physical ailments that were actually the causes of their "emotional" symptoms. For one person in every ten, sugar is a deadly food, paving the way toward a multitude of distressing physical symptoms, plus all the tortures of neurotic and even psychotic behaviour (1969).

The hypothesis of this study was that contrary to current belief and practice, symptoms of anxiety and depression are psychological manifestations of brain chemistry altered by dietary means. The null hypothesis, of course, was considered

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and if the relationships found were not statistically significant it would have been assumed that the true relationships between the variables involved in this study were zero and the results obtained occurred by chance alone.

### Method

The subjects consisted of ninety-two males and seventy-six females enrolled in introductory level psychology courses at Slippery Rock University. These individuals were recruited from their classes to participate in the study.

All students tested were given three test questionnaires. The three tests administered were the *IP A T Anxiety Scale Questionnaire*, *IP AT Depression Scale Questionnaire* and a symptoms questionnaire designed to test for hypoglycemia. The first of these tests, the *IP A T Anxiety Scale Questionnaire*, was a multiple response test with questions relating to anxiety symptoms and was used to indicate levels of anxiety. This test is easily administered, taking approximately ten to fifteen minutes to complete. First published in 1957 and revised in 1976, it gives an accurate appraisal of free anxiety levels. The main features the test looks at are worry, tension, low self-control, emotionality and suspiciousness (Krug, Scheir, Cattell, 1976). The second test administered was the *IP AT Depression Scale Questionnaire* which is also a series of multiple choice questions. This scale attempts to reveal seven distinct, though correlated depression factors. The seven factors include somatic complaints (hypochondriasis), feelings of guilt and worthlessness, suicidal depression, agitated depression, anxious depression, low energy and bored depression (Krug, Laughlin, 1976). The third and final test given was developed by Dr. John Barron, Orthomolecular Psychiatrist. The test is a series of yes/no questions pertaining to the common symptomatology of the illness hypoglycemia. This test was used by Dr. Barbara J. Reed-Stitt and documented by her as being a true indicator of hypoglycemia. Dr. Reed verbally granted Mr. Lawrence W. Fox permission to use this test in research of this type.

The 168 students were given the three tests at consecutive times. The tests were then scored by the examiner. The data were examined through a

correlational analysis across three groups; men, women, and men and women together (co-ed). The data were examined by three correlations for each group. The variables correlated were hypoglycemia and anxiety, hypoglycemia and depression, and anxiety and depression. A Pearson's product-moment correlation was run on each pair of variables and examined for significance.

### Results

High correlations for all three pairs in all three groups were found. Each correlation was statistically significant beyond the .001 level of probability. See Tables 1, 2 and 3 (following page).

### Discussion

The tests used are reliable and valid measures of the symptoms of anxiety and depression. The *IP AT Anxiety Scale* has high reliability and high validity correlations with other clinical rating scales (Krug et al, 1976). Validity and reliability are also quite high for the *IP A T Depression Scale*. The hypoglycemia symptoms questionnaire was devised by Dr. John Barron of Cleveland, Ohio, and was used by Dr. Barbara J. Reed-Stitt. It was used by Dr. Barbara J. Reed-Stitt when she was a probation officer in Cuyahoga Falls, Ohio. She found the scale very useful in assessing the degree of hypoglycemia (reactive hypoglycemia) brought about by the consumption of sugar, refined carbohydrates and junk food in general. Her work in lessening recidivism through the improvement of her probationers' diets is well known. She testified before the Senate Select Committee on Nutrition, which was chaired by Senator McGovern.

Dr. Michael Lesser in his book *Nutrition and Vitamin Therapy* contends that most symptoms diagnosed by psychiatrists as neurotic (and, therefore, psychogenic) are in reality behaviour manifestations of improper functioning of neurotransmitters due to lack of sufficient glucose. Not only are the symptoms of neurosis identical with those of hypoglycemia, but the blood sugar pattern in the two appears to be the same (Lesser, 1980).

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**Table 1**  
**Pearson's Product-Moment Correlation**  
**for 168 Subjects**

	Hypo	Depress	Anxiety
Hypo	—	.6689 (168) p = .000	.6393 (168) p = .000
Depress	.6689 (168) p = .000	—	.8054 (168) p = .000
Anxiety	.6393 (168) p = .000	.8054 (168) p = .000	—

**Table 2**  
**Pearson's Product-Moment Correlation**  
**for 92 Male Subjects**

	Hypo	Depress	Anxiety
Hypo	—	.5849 (92) p = .000	.5808 (92) p = .000
Depress	.5849 (92) p = .000	—	.7673 (92) p = .000
Anxiety	.5808 (92) p = .000	.7673 (92) p = .000	—

**Table 3**  
**Pearson's Product-Moment Correlation**  
**for 76 Female Subjects**

	Hypo	Depress	Anxiety
Hypo	—	.7393 (76) p = .000	.7111 (76) p = .000
Depress	.7393 (76) p = .000	—	.8472 (76) p = .000
Anxiety	.7111 (76) p = .000	.8472 (76) p = .000	—

are already aware of the extreme importance nutrition plays in mental illness as well as other behaviours (e.g. criminal behaviours). The research reported in this paper documents quite well that the symptoms produced by the physical conditions of hypoglycemia are indeed the same as those suffered by individuals evidencing the neurotic symptoms of anxiety or depression. The correlations show that there is a high positive relationship indicating that anxiety and depression are psychological manifestations of brain chemistry altered by dietary means.

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