

Copyright is owned by the Author of the thesis. Permission is given for a copy to be downloaded by an individual for the purpose of research and private study only. The thesis may not be reproduced elsewhere without the permission of the Author.

The Relationship between Daily Mead
& Salivary Immunoglobulin A.
Massey University Library
Thesis Copyright Form

Title of thesis:

- (1) (a) I give permission for my thesis to be made available to readers in Massey University Library under conditions determined by the Librarian.
- (b) ~~I do not wish my thesis to be made available to readers without my written consent for ... months.~~
- (2) (a) I agree that my thesis, or a copy, may be sent to another institution under conditions determined by the Librarian.
- (b) ~~I do not wish my thesis, or a copy, to be sent to another institution without my written consent for ... months.~~
- (3) (a) I agree that my thesis may be copied for Library use.
- (b) ~~I do not wish my thesis to be copied for Library use for ... months.~~

Signed

Yor Binnie Binnie

Date

29 July, 1991

The copyright of this thesis belongs to the author. Readers must sign their name in the space below to show that they recognise this. They are asked to add their permanent address.

NAME AND ADDRESS

DATE

THE RELATIONSHIP BETWEEN DAILY MOOD
AND SALIVARY IMMUNOGLOBULIN A.

A thesis presented in fulfilment of the
requirements for the degree of

MASTER OF ARTS

in

PSYCHOLOGY

at Massey University

J. E. BINNIE

1991

ABSTRACT

The aim of the present study was to examine the influence of daily positive and negative mood on secretory immunoglobulin A (S-IgA) concentrations in human saliva. An instrument was constructed for the measurement of daily mood, based on current theories in the psychobiology of affect, neuroendocrinology and behaviour. With this instrument the average intensity, peak intensity and duration of eight moods, two from each pole of positive and negative affect dimensions, were measured. From these scores three positive affect variables were created by combining scores on positive dimension moods, and three negative affect variables created by combining scores on negative dimension moods, and these variables were used for multivariate analysis. Twenty female subjects between the ages of 18 and 60 years were studied for 28 consecutive days. They were each required to capture 1.5 ml of free flowing parotid saliva, fill in the mood questionnaire, and record whether or not they had taken medication, exercise, alcohol, tobacco or menstruated on each evening of the study. These last variables were subsequently used as control variables in the multivariate analysis. Concentrations of S-IgA in the saliva were measured with an enzyme-linked immunosorbent assay (ELISA). No significant associations between S-IgA levels and positive or negative mood variables were detected. The lack of significant effects of mood variables on S-IgA is discussed in the context of the psychoneuroimmunological literature, and with particular emphasis on measurement issues.

ACKNOWLEDGEMENTS

I am deeply indebted to Dr John Spicer, my supervisor, for his understanding, criticism and guidance during this research.

I am extremely grateful to the women who took part as subjects, for their commitment during the twenty-eight days of the study. Thanks also to the many people who took part in pilot studies.

The advice and assistance of Steve Jones and Dr Bill Jones of D.S.I.R. during the S-IgA analyses is gratefully acknowledged.

TABLE OF CONTENTS

| | Page |
|--|------|
| ABSTRACT | ii |
| ACKNOWLEDGEMENTS | iii |
| TABLE OF CONTENTS | iv |
| INTRODUCTION | 1 |
| A. The Immune System and Salivary IgA | 1 |
| (a) The place of S-IgA in immunity | 1 |
| (b) S-IgA in the first line of defence | 2 |
| (c) S-IgA as an exemplar for the immune response | 3 |
| B. Psychological Factors and Salivary IgA | 4 |
| C. Mood and Salivary IgA | 7 |
| - A Psychobiological Theory of Mood | 9 |
| D. Studies Relating Mood to Salivary IgA | 17 |
| E. Hypotheses | 24 |
| METHODS | 25 |
| A. Procedure | 25 |
| B. Subjects | 25 |
| C. Measurements | 26 |
| (a) Measurement of Mood | 26 |
| (b) Measurement of S-IgA | 34 |
| (c) Control Variables | 36 |
| D. Ethical Issues | 36 |
| E. Statistical Analysis | 36 |

| | Page |
|---|------|
| RESULTS | 38 |
| DISCUSSION | 42 |
| Further Research | 50 |
| Conclusion | 54 |
| REFERENCES | 55 |
| APPENDICES | |
| Appendix A. Mood assessment questionnaire, including instructions | 62 |
| Appendix B. Information about the study given to prospective subjects | 65 |
| Appendix C. Instruction sheet for subjects | 68 |
| TABLES | |
| Table 1. Inter-item Correlations and Alpha Coefficients for Six Mood Variables. | 33 |
| Table 2. Descriptive Statistics for Mood Items and S-IgA | 39 |
| Table 3. Simple Correlations between S-IgA and Six Affect Variables | 40 |
| Table 4. Regression Analyses of Affect and Control Variable against S-IgA. | 41 |
| FIGURES | |
| Figure 1. Proposed Relationship between Affect Dimensions and Activities in Neuroendocrine and Brain Systems. | 15 |