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Notes

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A methodological note on the Palmar Sweat Index (PSI)¹

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Abstract

Commercial PSI apparatus was found to be convenient and practical; however, requiring clarification of methodology: (a) Change scores based on the same finger appear to be the only meaningful data; (b) Re-calibration of the densitometer is necessary with each print; (c) Dial readings should be made only after complete stabilization of the indicator, and; (d) all readings should be taken at the same time from printing, preferably 28 days or more.

The PSI, developed by Kuno (1956), used by Mowrer (1953) and colleagues, Haywood & Hunt (1963) and students, and others (see Winter et al., 1963), has become a more standardized and practical photometric measure of "emotional" perspiration due to the introduction of commercial apparatus. Film and printer (#6000) of Lab-Line Instruments, Inc., Chicago, makes possible the obtaining of "instantaneous" records of palmar sweat in approximately 90 seconds with no discomfort to Ss. Only 30 seconds drying time is required after painting the volar surface of S's finger with solution (3 drops of hydrochloric acid added to 13 g anhydrous ferric chloride in 400 cc chemically pure acetone) before insertion into the printer, which presses the film against S's finger for 30 seconds with a constant pressure of 1 pound, yielding a "permanent" record of sweat production. Lab-Line densitometer (#6010) then provides direct PSI dial readings, corresponding to the density of a print, through comparison of the amount of light allowed through a set area at the center of a print with that of clear film via photoelectric cells.

During the course of a recent investigation of outcome effects of psychotherapy, to be published elsewhere,² in which the above apparatus was provided by Dr. J. McV. Hunt, and Lab-Line Instruments Inc., several methodological points became evident, in addition to those previously mentioned in the literature. (a) Since densitometer readings are based on the amount of light let through the print, not only amount of sweat influences the absolute level of PSI, but also, distance between print swirls. Therefore, change scores based on the same finger appear to be the only meaningful data, un-

less a means of partialling out swirl size is included. (b) A number of factors necessitate re-calibration of the densitometer before and after each reading to insure comparability, in addition to allowing a 20 minute "warmup" period. (c) Dial readings should be taken only after the needle has stabilized to the degree that extraneous noises and jars do not cause "drift" (approximately 45 minutes). (d) Most important, prints continue to darken over time from printing. A trend analysis performed on PSI readings taken from the same prints of 40 unselected S's at 1 day, 1 week, 3 weeks, and 4 weeks from printing found a highly significant effect for time ($F, 101.14; df, 3/117; p < .001$). Means presented in Table 1 demonstrate a significant increase in readings from 1 day through 3 weeks (linear component $F, 249.62; df, 1/117; p < .001$), with leveling from 3 to 4 weeks (quadratic component $F, 50.49; df, 1/117; p < .001$). The average r between any pair of reading times ($r = .992$) indicates a highly consistent increase across all PSI levels. Therefore, lest group differences be introduced after-the-fact by E error, all PSI readings should be taken at the same point in time from printing, preferably 28 days or more.

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Note

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2. Paul, G. L. Effect of insight, desensitization and attention-placebo treatment of anxiety: An approach to outcome research in psychotherapy.

Table 1. Mean PSI Readings Over Time

	Time From Printing			
	1 day	1 week	3 weeks	4 weeks
Mean	13.3	16.3	17.6	17.6
SD	16.45	13.49	14.48	14.72