Doctoral Thesis

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is it a reliable construct?

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TYPE A BEHAVIOR PATTERN AND ITS RELATIONS TO PSYCHOPHYSIOLOGICAL REACTIVITY. IS IT A RELIABLE CONSTRUCT?

Dissertation
for the Bestowel of the Title of Doctor of Natural Sciences as Conferred by the Swiss Federal Institute of Technology in Zurich, Switzerland

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SUMMARY

The present study has critically evaluated what is known about the Type A behavior. Especially the relation between the Type A behavior pattern and psychophysiological reactivity was reviewed and supplemented with three studies done at this laboratory. The current knowledge leads to the suggestion that the Type A behavior construct is unsatisfactory in explaining the risk of coronary-prone subjects. The mechanisms linking TABP and CHD are still not known. The most plausible theory of a hyperresponsivity of the sympathetic-adreno-medullary system and also of the pituitary-adreno-cortical system has failed to be confirmed by an increasing number of psychophysiological studies.

In sum, the Type A behavior pattern has been identified as a risk factor of CHD of the same magnitude as the traditional risk factors, smoking and cholesterol. This behavior pattern has been characterized by attributes such as excessive activity, hard-driving behavior, impatience, time urgency, competitiveness, hostility and aggressivity, all of which are readily evoked by a variety of stimuli in the social and physical environment. This broad definition has lead to the development of different Type A assessment methods which measure different aspects of the TABP. Consequently, the overlap among the TABP assessment methods has been generally modest. The Structured Interview still represents the best TABP assessment method, although the way it is conducted and rated is subjective and dependent on the training of the interviewer and rater. In contrast to the different TABP questionnaires, the SI assessment is based on speech characteristics and nonverbal behaviors and only to a small extent on the content of the answers. Nevertheless, the questionnaires have been used more frequently than the SI because they are more objective and timesaving. In conjunction with different epidemiological studies, the Structured Interview and the Jenkins Activity Survey, the Framingham Type A scale and the Bortner Type A scale questionnaires had proved their reliability and validity as predictors of CHD. With the exception of the Framingham Type A scale, these Type A assessment methods have been validated for middle-aged, healthy, white-collar men only. Just in this population the prevalence of the TABP was found to be highest. In women, mainly
housewives, blacks, blue-collar workers, and people living in nonurban areas the TABP seems to be less prevalent but has nevertheless also been related to CHD in women. The TABP was even found to be evident in preschool children. The significance of the TABP in children, however, might be questionable, since the orientation and extent of the TABP may change with age. Heredity seems to play a much smaller role than the interaction of the individuals with their social and physical environment. The TABP has been studied mainly as an epidemiological construct. Psychological concepts, arising from different perspectives, were also developed a decade after TABP research began. No concept has proved its validity consistently. The most promising approach was made by Glass (1977) with his "uncontrollability" concept. The inclusion of psychological as well as physiological processes make it the most comprehensive model. According to this model, the Type A individual will begin to struggle just as he perceives the threat of losing control over the situation. At the point where he perceives that struggling is useless, he will give up, act helpless and become depressed. These active and passive behaviors will be physiologically accompanied by shifts between sympathetic and parasympathetic dominance. Although this concept might include behavioral and emotional components of the TABP, namely the aggressivity-hostility and the depression-helplessness dimensions, the concept fails to define precisely the situations provoking either active, aggressive or passive, helpless behaviors that might be related to physiological processes. In addition, psychosocial factors were not explicitly included. This was done with the "cognitive social learning model" of Price (1982), which in turn failed to associate precisely these psychosocial processes with the physiological mechanisms. Two other concepts, "self-involvement" (Scherwitz et al., 1978) and "ambiguous standards of evaluation" (Matthews, 1982), are of less significance. The findings of the psychophysiological studies are confusing. A great number of studies failed to show the hypothesized hyperresponsivity of Type A subjects, and more specifically, the task specificities eliciting these Type A-B differences have not been determined. Even with the same tasks, the results have rarely been reproduced. When the hypothesized hyperresponsivity of Type A subjects was found, it was found most often for systolic blood
pressure and to a lesser degree for heart rate and the catecholamines, noradrenaline and adrenaline. Moreover, these A-B differences were most reliably found when the Structured Interview was employed as Type A assessment method and healthy, middle-aged men were used as subjects.

The three psychophysiological studies done at our laboratory provided a comprehensive insight into the different aspects of the TABP. The TABP was assessed with different Type A assessment methods, and the subject samples consisted of male and female students, middle-aged men and women. In contrast to most other studies, the comparison of psychophysiological reactivity was done not only with blood pressure and heart rate but also with various other cardiovascular and noncardiovascular variables. At the same time, personality factors, speech characteristics, and performance were examined in relation to the TABP. As the set of tasks was thought to affect different Type A components, some of them were used in two studies for comparison. The results obtained reflect the confusing picture presented by the TABP literature: modest overlap between the TABP assessment methods, no A-B differences for systolic blood pressure and heart rate, and no replication of the physiological A-B differences found in one study but not in the other one using the same task. Thus, no conclusions can be drawn from these studies with respect to the task specificities eliciting the expected A-B differences.

Nowadays a trend is evident to view the TABP, as originally conceived, as no longer useful. Alternative approaches have attracted new attention: The comparison of low-high reactors has been revealed to be more reliable in predicting sympathetic hyperreactivity than the TABP was. Different Type A components have been examined in relation to physiological reactivity. Of these, the hostility-aggressivity dimension has been shown as the most promising dimension. Since the suppressing aggressivity and the anger-in dimensions have been validated as the most important personality dimension in hypertensives, and since future hypertensives were found to reveal sympathetic hyperreactivity to mental challenges as the Type A subject is suggested to do, a convergence of these two research areas seems plausible.

For a better understanding of human behavior and psychosomatic disorders, therefore, it seems worthwhile to examine a broad set of
environmental and personal factors including their interactions. In this sense we plan in our follow-up of the third study not only to assess the psychophysiological reactivity and the TABP with different assessment methods, but also to assess different personality dimensions, life habits, family history of CHD and of hypertension, life events between the follow-ups, performance and speech behavior. The fact that only subgroups of Type A subjects and of hypertensives produce hyperreactive physiological responses and will develop future CHD and hypertension, respectively, suggests the utility of considering in a first step a large subject sample and then selecting for the follow-up study those subjects acting hyperresponsively, expressing Type A behavior and/or scoring high on hostility and anger-in. This approach should be more promising in identifying the coronary-prone and hypertensive subjects than the traditional practice of examining just the TABP or hypertension.