

Projection of a specific class of human activity on a micro to macro scale as a presumption for a simple approach to measurements of mental and social health

Authors' Contribution:

- A Study Design
- B Data Collection
- C Statistical Analysis
- D Manuscript Preparation
- E Funds Collection

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Abstract

Background and Study Aim:

The dilemmas concerning measurements of mental health and social health are still open issues. Little progress has been made since the formation of the thesis 50 years ago by Michael Piechowski, that all the attempts to determine the core of mental health lack a clearly and accurately defined theoretical scheme. The cognitive goal of our simulation study is to answer the question: do adult, intellectually and physically active women modify projection of their activities, depending on their changing activity scale, individual or collective threat and possible expansion of power in the changing social environment? The application objective involves methodological recommendations dedicated to mental health and social health measurements for initial preclinical studies.

Material and Methods:

Sixty-four female second year students of sports science (aged 20 to 23 years) participated in the anonymous KS-4M projective (pictorial) test. In each simulated situations the task of the examined person (respondent) is: in micro scale (pictures 1 and 4), "an indication of yourself" in the circumstances of interpersonal physical aggression; in medium scale (picture 2), indication of a specific solution (out of seven possible) in the event of threat of aggression of a foreign power; in macro scale (picture 3), indication of decisions in a highly attractive external situation – projection of six possibilities of unlimited power over people and things, albeit for a short period.

Results:

In response to two simulated circumstances of interpersonal aggression in micro scale, the students indicated "verbal counteraction to physical aggression" (55% i 70%, under circumstances of simulated police intervention). Medium scale simulation (indicating a specific solution in cases of threat from an external superpower) was dominated (64%) by the projection involving "encouraging defensive responses and a honorable use of force by competent entities of the environment". Projection of actions in simulation of unlimited power over people and objects within a short period of time in macro scale has been already divided into three categories, namely: "refraining from taking high responsibility" (34%); "prudence in highly tempting external circumstances of macro scale actions" (23%); "striving for meeting one's excessively hedonistic needs" (22%).

Conclusions:

The KS-4M projective (picture) test is not only a simple and easy to use tool allowing prediction of adult people's actions, mainly under threat of physical aggression, from micro- to medium scale and possible escalation of aggression in macro scale (in cases of power expansion to such an extent). The research results ensuring real anonymity for the respondents and meeting the criterion of sample representativity in relatively homogenous social groups (soldiers, policemen, rescue service, athletes, teachers, etc.), can be reliable indices of mental health (simulations of micro scale) and social health (medium and macro scales simulations).

Keywords:

innovative agonology • physical aggression • pictorial simulation • preclinical studies

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Simulation – caused in model an event, which under some circumstances is similar to the event occurring in examined real object [35].

Bravery – means efficiency in good deeds, efficiency combined with estimable aspirations [35, 36].

Aggression (in psychology) – is deliberate behaviour by the perpetrator intended to either hurt the opponent, harm or distress him/her in any other way, cause pain (regardless of whether this aim is achieved), or destroy things [37, 38].

Aggression (in praxeology) – is to initiate destructive fight or move in a verbal dispute from material arguments to those causing distress to the opponent [35].

Aggressiveness – a human characteristic manifesting itself in inclinations to hurt others, to destructive behaviour. **Aggressive** = virulent, truculent, attacking [35].

Innovative self-defence – involves using verbal and/or behavioural methods and means along with available items in counteracting each attack on any good of an individual (honour, dignity, life, health, property, etc.), whereas a defender submits his/her actions to the criteria of prophylactic and therapeutic agonology, considering the most general directive of efficient leading of any struggles and also universal assumption of self-defence training as absolutely paramount [30].

Creative syndrome of power – is an elementary innate cognitive-behavioural predisposition of a human being which is to a greater or lesser extent determined by a talent to a specific intellectual, motor or intellectual and motor activity which constitutes the basis for an individual to adapt to social environment, natural and artificial environment, building interpersonal relations in line with universal values and undertaking such activities

INTRODUCTION

The dilemmas concerning mental and social health measurements are still an open issue. Little progress has been made since thesis formation 50 years ago by Michael Piechowski [1] who stated that all the attempts to determine the core of mental health lack a clearly and accurately defined theoretical scheme. Piechowski further maintained that the deepest insight into the notions of maturity and mental health was performed by Maria Jehoda in 1958 [2]. Piechowski clearly emphasizes that none of these categories is based on firm empirical fundamentals, besides they are not based on any rational theory of human behaviour. However, he recommends tracing them due to their inspiring value, allowing further studies and theoretical analyses [1]. Due to his own experience in simulation studies on human actions under difficult and extreme conditions [3-6], we are particularly interested in “controlling the human environment” which is one of the six categories of terms pertaining to positive mental health, described by Jehoda [2]. This category pertains to the knowledge of the extent to which situational requirements are met, one’s attitude to other people and coping with the task and problems that come up in life [1].

The most reliable empirical data on human actions under various conditions, especially these pertaining to relations with other people “that come up in life” (we directly refer to the thesis used by Piechowski [1]) are based on direct observation, especially of the participants. The basic drawback of this methodological approach is that it is impossible to replicate almost identical circumstances (tasks and problems) “that come up in life” without the necessary experimenter’s intervention.

Therefore, we stick to the basic thesis that repeatability of the above-mentioned tasks and problems can be ensured only through simulation studies. Conversely, in our opinion, the choice of specific approaches and simulation techniques should be determined based on detailed theses which are fundamentals of the cognitive goal of empirical studies. The last statement, however,

belongs to more general theses whose range goes beyond the above mentioned six categories of the review of maturity and mental health notions developed by Maria Jehoda [2].

In a sense, it is convenient for us to know about the cognitive qualities of unique simulation methods that were earlier used by the first author [3, 4] in cooperation with other researchers or alone [6], or analysed in the review paper [5]. The confirmation of Jarosław Rudniański’s thesis truthfulness is one of the most important findings of this research [7]. The author states that a human being becomes aggressive under specific conditions. Based on this thesis, RM Kalina [8, p. 111] points out that the probability of such behaviours occurs under conditions of defence struggle.

A similar interpretation [3], however, requires correction of the quantifier: Rudniański’s thesis is true to a great extent as the results of simulation studies provide the evidence that it is not a without exception condition. Even when physical aggressiveness towards the respondent, simulated using description, is differentiated by the goal (or the goal is not specified or it is focused on killing the respondent), is not a rule at all that the respondent will not necessarily react with multiplied aggression and will be the first to kill the aggressor. Many respondents (in a sense paradoxically) declare being ready to respect the rules of noble fight when the aggressor’s goal is to kill the respondent [6, 9]. This phenomenon was discovered by Kałużny [10] in late 20th century in a large sample (n = 1,472) of Polish female and male population of different age, a different professions and physical activity levels, as well as different approaches to finding solutions under extreme circumstances.

The cognitive goal of our simulation study is to answer the question whether adult, intellectually and physically active women modify projections of these actions, depending on the changing activity scale, the degree of personal or collective threat and the possibility of power expansion in the changing social environment.

The application goal of the study involves methodological recommendations dedicated to mental and social health measurements for preliminary pre-clinical studies.

MATERIAL AND METHODS

Participants

Sixty-four female second year students of sports science (aged 20 to 23 years) participated in the anonymous KS-4M projective (pictorial) test (test visualization see [11]). Due to the nature of the research, the studied women also formed a uniform group in terms of intellectual stimuli (the necessity of receiving passing examinations in different areas of academic education) and the identical cyclical physical activity having a diverse motor structure (apart from individual involvement in sport-related activities during leisure time).

Voluntary student's consent was the inclusion criterion. The lack of consent was the exclusion criterion (no cases).

Design study and tool

Each behaviour of the personae indicated by the respondent in the simulated situation, shown in pictures from 1 to 4, is marked with a specific alphabet letter. In each simulated situation, the respondent's task is: in *micro scale* (pictures 1 and 4), "an indication of yourself" in the circumstances of interpersonal physical aggressiveness; in *medium scale* (picture 2), indication of a specific solution (out of seven possible) in the event of threat of aggressiveness of a foreign power; in *macro scale* (picture 3), indication of decisions in a highly attractive external situation – projection of six possibilities of unlimited power over people and things, albeit for a short period. Each picture during the research – after prior instruction – was shown for 30 seconds.

Picture 1 (first *micro scale* simulation) shows the types of behaviour in nine people, in an extremely acute conflict situation: three in a manner inform about bravery; three about aggressiveness. Picture 4 (second *micro scale* simulation) shows the types of behaviour in seven people under similar circumstances, where one of the characters is a policeman who intervenes using force (1 behaviour indicates bravery, 3 behaviours indicate aggressiveness). In Pictures 1 and 4 (*micro scale*) after one simulation reveals the following four projections: total helplessness;

being indifferent to one's doing physical harm to others; fascination with physical violence; aggressiveness.

In a strictly methodological sense, projection in a simulated situation with hypothetical actions (motor, verbal or verbal-motor actions or refraining from counteractions – pictures 1 and 4; for intellectual actions mainly – pictures 2 and 3) belongs to **inferred phenomena**. The latter are not sensually observed, therefore **theoretical terms**, precisely defined or describing these phenomena precisely enough (e.g. "fascination with physical violence and aggression", "striving for meeting excessive hedonistic needs") are necessary. Thus, if the respondent reveals aggressive behaviour in both *micro scale* simulations, it is justified to conclude that he/she is an aggressive person (with a tendency to violence), however, it is only one indicator of mental health estimation.

If such projections are confirmed in *medium scale* simulations of actions (Picture 2) and *macro scale* simulations (Picture 3), there are empirical bases for the assumption that their agonistic potential [12-15] is, for certain reasons, determined by aggressiveness. In case of power expansion in such persons, in the future, it can adversely affect social health of the social environment subject to this power. The thesis: "the more people with such personality profiles are in a given community, the lower is the level of social health" seems justifiable.

The assumption presented above implicates methodological criteria of social health estimation based on KS-4M projective (picture) test results or similar simulation tools (apart from the theoretical dilemmas of classifying projection tests [16, 17]) used in simulations: verbal and written [4, 6, 9, 10], pictorial [3, 11, 18] computer-mediated [19], etc. Therefore, proportions of the inferred phenomena, declared by relatively homogenous groups within a given community and accepted interpersonally by competent experts, either as the evidence for maturity and mental development indication or negation, are basic indicators of social health estimation from the point of view of statistics.

Therefore, we have used proportion indicator in our study, referring to the diagnosed inferred phenomena pertaining to limited (yet very important) aspects of human personality (verified through approaches to coping with tasks and problems posed by life) [1, 2]). We do not present

in a conscious manner which will ensure possibly most comprehensive development of personality and all personal predispositions for the benefit of the common good [30].

Toxic syndrome of power – is a need experienced by an individual which is related to obtaining egoistic power over possibly greatest or specific number of people, objects and/or nature elements. In order to satisfy it, an individual is not able to refrain even from extreme destructive actions, treating ethical standards, rules of social coexistence and other people in an instrumental manner [30].

profiles of individual participants since we want to ensure complete anonymity of assessment. Therefore, it is impossible to assign individual results to a given person.

Moreover, we have used a two-step procedure ensuring complete anonymity, eliminating this way possible manipulation with study outcome. The first author (who does not know access code to the test), after test performance (monitored picture on a big screen) in fully comfortable conditions (individual contacts or interference from other respondents are impossible) performed a collective comparison of the results. The second author did not have the opportunity to develop individual profiles and compared the results after having received the access code from the author (Table 1). Interpretation of the results and discussion is a joint work of the authors of this paper.

RESULTS

In response to two simulated circumstances of interpersonal aggression in micro scale, the students indicated “verbal counteraction to physical aggression” (55% i 70%, under circumstances of simulated police intervention). *Medium scale* simulation (indicating a specific solution in cases of threat from an external superpower) was dominated (64%) by the projection involving “encouraging defensive responses and a honorable use of force by competent entities of the environment”. Projection of actions in simulation of unlimited power over people and objects within a short period of time in *macro scale* has been already divided into three categories, namely: “refraining from taking high responsibility” (34%); “prudence in highly tempting external circumstances of macro scale actions” (23%); “striving for meeting one’s excessively hedonistic needs” (22%) (Table 1).

Less than 5% of the studied females revealed “extremely severe physical aggressiveness, only in *micro scale* simulations“. Severe, partly pro-social physical aggressiveness was revealed in response to projection of pictures 2, 3 and 4 and this tendency (apart from the sequence of pictures) – most often revealed in *micro scale*, in simulated pro-social aggressiveness with an intervening policeman (9.38%) – a decrease with the increase of the simulated scale of action: *medium scale* 7.81%; *macro scale* 6.25% (Table 1).

The modifying effect of two factors on projection of the studied females’ actions was clearly revealed. Firstly, under similar circumstances of interpersonal aggression (*micro scale*), the simulated policeman’s intervention (picture 4) results in a decrease of pro-social attitudes (limited to 70.31% of the respondents, while during the first simulation (picture 1) 89.06% of the respondents were ready to defend the victim of aggression. Secondly, with increasing the simulated scale of activity, the proportion of the examined women who are willing to act pro-social decreases: *medium scale* 85.94%; *macro scale* 23.44% (Table 1).

DISCUSSION

According to our best knowledge, the paper presents for the first time the analysis of study results based on the KS-4M projective test, taking into account all four simulated situations involving human actions in the following sequence: *micro scale*, *medium scale*, *macro scale* and again *micro scale*. In the course of validation of the first version of the test, namely KS-4 test, a statistically significant correlation was found between WD (bravery Index), calculated based on the results of action simulation in *micro scale* (pictures 1 and 4) with the indicators of the results obtained from the direct observation of military cadets’ behaviour during performance of fun forms of martial arts (FFMA) [20]. The specificity of FFMA involves allowance of the exposure to physical pressure exerted on the participants’ bodies [21-23]. WD index also correlated with UA indicator corresponding to disclosed aggressiveness ($r = 0.433$, $p < 0.05$) [20]. This means that the more often the participant exceeded the set criteria of pressure exerted on the participants’ bodies (e.g. hitting instead of touching with a judo belt), the lower was the value of WD index, indicating the opposite of bravery, namely aggressiveness.

Earlier, in a diagnostic sense, the application of the multidimensional picture test KS-4M, was focused on verifying the effectiveness of the innovative program focused on aggressiveness reduction and the development of bravery in military cadets [24]. Due to the cognitive goal of that study, the WD index which, after the experiment, correlated highly enough ($r = 0.641$, $p < 0.01$) with self-defence instinct (also an inferred phenomenon, based on the application of another simulation tool) while, prior to the experiment, the value was $r = 0.361$. An opposite tendency was noted

Table 1. The result of action projection under simulated circumstances of interpersonal aggressiveness (*micro scale*), the threat of aggressiveness (*medium scale*) and (*macro scale*) in sport sciences female students (n = 64).

The result of action projection in simulated situations using pictures (inferred phenomena):	Scale activities:			
	micro (persons in the circumstances of interpersonal physical aggression):		medium (a specific solution in the event of threat of aggression of a foreign power)	macro (a highly attractive external situation)
	(1) nine persons	(2) seven people, including an intervening policeman		
	n (%)	n (%)	n (%)	n (%)
sacrificial defence of a person attacked	3 (4.68)			
verbal counteraction of physical aggression	35 (54.68)	45 (70.31)		
encouraging competent entities of the environment to defend themselves (on an medium scale, it is also worth using one's own forces)	19 (29.69)		41 (64.06)	
prudence in highly tempting external circumstances of macro scale actions				15 (23.44)
justified use of force in self-defence and while defending other people			13 (20.31)	
avoiding conflicts by appeasement			1 (1.56)	
refraining from taking high responsibility				22 (34.38)
lack of self-assurance under collective threat			0	
complete helplessness in the event of personal threat	0	0		
striving of power and dominance				6 (9.38)
striving for meeting one's excessively hedonistic needs				14 (21.88)
being indifferent to physical harm to others	4 (6.25)	0		
fascination with physical abuse and aggression	2 (3.13)	6 (9.38)		
verbal aggressiveness		1 (1.56)		
extremely severe abuse of the right of defence a large group			1 (1.56)	
responding with aggression to aggression	1 (1.56)		3 (4.69)	
acute physical aggression, partly pro-social	0	6 (9.38)	5 (7.81)	4 (6.25)
extremely severe physical aggression	0	0	0	3 (4.69)

in the control group: the value before the experiment was 0.226, $p < 0.05$ and after the experiment it was $r = 0.050$ [24]. Nota bene, a high level of aggressiveness (measured using Buss-Durkee Questionnaire) was the criterion of military cadet inclusion into the experimental group [25].

The KS-4M projective test was applied in the study performed in a large sample of an adult male population (n = 406) and a smaller sample

of female population (n = 110), having one factor in common, namely involvement in social leisure time activity as youth sports animators [3]. The result obtained in sport science students is very similar to the value obtained in this study [3] and pertains to the proportion of youth sport animators (94.5% of women and 90.3% of men) who during the first simulation (picture 1) were ready to defend the victims of aggressiveness in different ways. The effect of the factor modifying the

simulated circumstances (an intervening policeman in micro scale) is similar: 67.3% and 67.7% of the female and male participants respectively were ready to undertake defensive actions [3].

The discussion about the usefulness of the KS-4M projective test and other simulation tests [4, 10, 11, 26, 27] in mental and social health assessment, is still an open issue in terms of methodological correctness as well as in emotional and legal sense. The acceptance of short testing time, the attractive form of the test due to inclusion of drawings and, first of all, anonymity of the results (emotional aspect and fulfilled RODO criteria) by the respondents is indisputable. As for meeting the standards of methodological correctness, first of all it is necessary to develop the approach to verification of the extent of compliance of action projection in two types condition: when the respondents explicitly (personally) present their results; when the results of their declarations ensuring full anonymity. Only the results of the validation procedure would provide empirical argumentation for acceptance of the KS-4M projective test and every other simulation as a reliable tool for preclinical assessment of mental health and social health.

A similar recommendation was made by the authors of M&SH Questionnaire (a simple method of mental and social health measurement from the perspective of public health prevention [28]), confirmed by the results of assessment of tool reliability using test-retest approach, ensuring respondents' anonymity [29]. This way of reasoning is appropriate for breaking some scientific paradigms. We share the view presented by Kalina and Kondzior [28, p. 147-148], adding at the beginning that neither the KS-4M projective test „(...) and M&SH Questionnaire are not the tools suitable for clinical studies. However, both of them are characterized by other values such as simplicity and applicability, and therefore, can be used by specialists in prophylaxis and therapy whose professions do not require psychologist or psychiatrist skills (physical activity pedagogists, bibliotherapists, music therapists and specialists in art therapy)".

The application of the KS-4M projective test is not subject to innovative agonology limitations [14, 15, 30] since the standards of correctness are met and the test requires using simple tools for verification of all the dimensions of health and survival ability [31-34]. A separate

issue, not only in a methodological sense, is the extensive use of simulation methods (well-validated) in developing innovative self-defence (see glossary and [30]). However, this is an issue that requires separate publication.

Regardless the initially cited discussive arguments for the justifiability of KS-4M projective test application (especially anonymous) in preclinical (screening) assessment of mental health and social health, the study result published in this paper empowers the authors to form the following premises:

- 1) the knowledge based on projection of actions performed by different social groups significantly affecting the quality of fellow citizens' life, can facilitate the formation of educative and organizational recommendations having a strategical importance for a balanced development (replication of disclosed relations in different social groups recognized as elite groups, would indicate the dominance of the toxic power syndrome: only 23% of the population are willing to be guided by "prudence in highly tempting external circumstances of macro scale actions" while 34% of the respondents declare "refraining from taking high responsibility" 9% determined to "striving of power and dominance"; 22% "striving for meeting one's excessively hedonistic needs");
- 2) the result presented above aptly reflects the social reality, documented by everyday media reports, therefore it can be regarded as a synthetic estimation of social health in the initially highlighted aspect (the ways of coping with tasks and problems posed by life), but reduced to a specific academic milieu;
- 3) we should take into account a strong resistance from different authorities providing access to different simulation studies of this kind (and making the results available), important units and groups of interest having a wide range of influence on social life and having experience in camouflage of authorities and different forms of violence.

CONCLUSIONS

The KS-4M projective (picture) test is not only a simple and easy to use tool allowing prediction of adult people's actions, mainly under threat of physical aggression, from *micro-* to *medium scale*

and possible escalation of aggression in *macro scale* (in cases of power expansion to such an extent). The research results ensuring real anonymity for the respondents and meeting the criterion of sample representativity in relatively homogenous social groups (soldiers, policemen, rescue service, athletes, teachers, etc.), can be reliable indices of mental health (simulations of micro scale) and social health (*medium and macro scales* simulations).

The factors significantly modifying human actions under similar circumstances include events inspired or made credible by specific public entities (*micro*

scale), while with the increased (*medium and macro*) scale of action, some personality traits (that are quantifiable – see the structure of inferred phenomena in Table 1) are revealed. These traits can be regarded as simple indices of either creative or toxic power syndrome.

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