

From research to the implementation of methods for the treatment and prevention of PTSD

Agnieszka Popiel*

*SWPS University of Social Sciences and Humanities,
Advanced Clinical Studies and Therapy Excellence Center
0000–0001–9990–4971*

Bogdan Zawadzki

*University of Warsaw,
Faculty of Psychology
0000–0002–6578–8412*

ABSTRACT

Objective

Posttraumatic stress disorder (PTSD) affects approximately 10% of traffic accident victims and more than 50% of rape, war and violence victims. PTSD negatively affects the quality of life and is associated with direct and indirect costs in healthcare. Each of these reasons provide sufficient rationale for furthering research on effective treatment and prevention of PTSD.

Thesis

Between 2008 and 2018, the University of Warsaw and the SWPS University embarked on a series of research programs aiming to address vital social needs by determining the efficacy of the existing methods for the treatment and prevention of PTSD in individuals exposed to work-related trauma (the results can be used in healthcare planning).

Conclusions

Research results have important practical implications. Basic research examined the risk factors for PTSD and the structure of PTSD symptoms. Studies exploring the effectiveness of PTSD therapy have generated new knowledge about the comparative efficacy of psychotherapy, pharmacotherapy and combination therapy. The proposed cognitive therapy program was found to be as effective as prolonged exposure therapy without the need for trauma processing; therefore, it constitutes an alternative therapeutic method. The

* Corresponding author: Agnieszka Popiel, SWPS University of Social Sciences and Humanities, Advanced Clinical Studies and Therapy Excellence Center, 03–815 Warsaw Chodakowska Street 19/31. E-mail: apopiel@swps.edu.pl.

proposed method was used to develop the “Effective stress management” program that proved to be effective in preventing PTSD in individuals exposed to work-related trauma. A detailed protocol for replicating the methodology in other occupational groups exposed to trauma is available in the form of a manual. Published textbooks, educational activities and extensive training for professionals have increased the availability of treatment and prevention methods based on empirical data in Poland. The results of the research program have been cited in numerous foreign publications, and they have been incorporated into the NICE guidelines for the treatment of PTSD.

Keywords: posttraumatic stress disorder (PTSD), therapy, prevention, implementation.

INTRODUCTION

Posttraumatic stress disorder (PTSD) is a mental disorder that affects about 10% of victims of traffic accidents, almost half of those who have experienced rape or war. It can develop as a consequence of violence, a threat to life in natural and industrial disasters, and, to a lesser extent, as a consequence of a pandemic (APA, 2013; Popiel, Bielecki, Zawadzki, Mroziński & Pragłowska, in press). The structure of the symptoms is not related to the type of experience lived. Symptoms include suffering and impaired functioning associated with experienced recurrent memories of the event, a state of chronic arousal, and avoidance of stimuli associated with trauma. Thus, it is a disorder that negatively affects the quality of life and relates to direct and indirect health costs. The lifetime prevalence of PTSD is estimated to affect 8.7 of the general American population (lower percentages in Europe and Asia; APA, 2013). Epidemiological indicators such as DALY (*disability-adjusted life-years*) place PTSD in 12th place PTSD among mental disorders and neurological diseases considered together. They also indicate a higher burden in the middle- and low-income countries and the need for preventive and therapeutic measures (Collins et al., 2011; von der Warth, Dams, Grochtdreis & König, 2020). Our team’s research on PTSD risk factors, therapy, and prevention seems evident from this perspective. However, this text is unusual because it concerns the implementation of results – a topic that the strictly scientific literature rarely considers.

RESEARCH

Our team (at the University of Warsaw in cooperation with scientists from the SWPS University) carried out research programs TRAKT (an acronym formed from initial letters of the words in Polish: **TR**Auma-**K**atastrofy (Catastrophes)-**T**herapy which means “the road”) between 2008–2018. We aimed at answering questions about the possibility of reducing the negative psychological consequences of PTSD. Our goal was to determine the effectiveness of treatment methods and prevention of PTSD, especially in groups where the experience of

trauma can be predicted because it is inevitably related to professional work. We hoped that the data could support systemic care planning. In turn, we will present the assumptions and conclusions of the following projects: PL0088 Financial Mechanism created by Iceland, Liechtenstein and Norway, through the EEA Financial Mechanisms and the Ministry of Science and Higher Education „*Psychological causes and consequences of traffic road accidents*” (E013/H03/2007/01/85/1; the amount of funding: EUR 495 040), the clinical part of which was the TRAKT-1 therapeutic program; Grant “*Factors determining the effectiveness of cognitive-behavioural psychotherapy of posttraumatic disorders*” of the Ministry of Science and Higher Education N N106360937 (Amount of funding: PLN 338 208) – TRAKT-2 program; Project 2012/06/A/HS6/00340 [MAE-STRO-3] “*PTSD: Diagnosis Therapy Prevention*” of the National Science Centre (PLN 2 334 552), the therapeutic part of which was the TRAKT-3 program. The order of the projects also reflects the sequence of research proceedings, which is presented schematically in Figure 1.

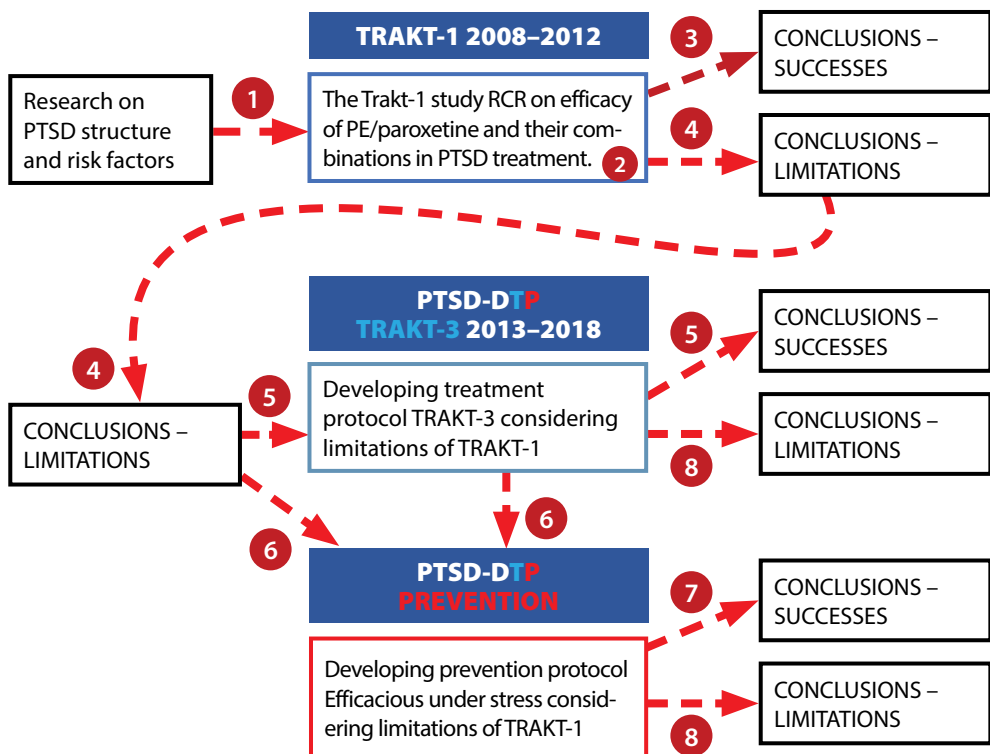


Fig.1. TRAKT1-TRAKT3 programs and Effective action under stress – research and implementation procedures stages.

The stages of the procedure (1–8) presented in the figure included ten years of research, each of which had significant practical implications.

1. Preparation, basic research

Research on the psychological consequences of catastrophes, initiated by Professor Jan Strelau, has been conducted since the beginning of the twenty-first century (cf. Strelau & Zawadzki, 2005; Zawadzki, Popiel & Pragłowska, 2021). The focus on the victims of traffic accidents planned in 2006 was justified by: the recognition by the WHO of road accidents as the fifth cause of death in the world, the number of accidents in Poland (Poland, together with Italy and Ukraine, is one of the European countries with the highest absolute number of fatal road accidents exceeding 5,000 victims per year). This number makes road accidents one of the most common causes of posttraumatic stress disorder (PTSD) in countries not involved in a war. Compared to PTSD therapy as a consequence of rape or participation in combat, a small number of studies concerned the treatment of victims of road accidents. Therefore, basic research looked at the structure of symptoms and risk factors (like temperamental determinants of PTSD) in victims of traffic accidents. In preparation for the study, it was necessary to develop Polish versions of tools enabling the comparability of the data obtained with other researchers' results. These were tools for diagnosis of PTSD and co-occurring disorders: SCID I (First, Spitzer, Gibbon & Williams, 1997) and SCID II (First, Gibbon, Spitzer, Williams & Benjamin, 2007), depression (BDI-II; Beck, Steer & Brown, 1996) or personality disorders (PBQ; Beck et al., 2001).

2. TRAKT program – the study of the effectiveness of therapy

In Poland, the effectiveness of any form of PTSD treatment has never been evaluated, nor has there been a system of diagnosis and psychological care for accident victims in Poland. The world literature on the subject pointed to a significant gap: the lack of studies comparing the effectiveness of psychotherapy with pharmacotherapy alone and treatment combining psycho- and pharmacotherapy (with the efficacy of psychotherapy itself, including the method of prolonged exposure, relatively well studied in the world; Foa, Hembree & Rothbaum, 2007). The TRAKT program was supposed to fill this gap. In 2006, teams of psychologists from the field of individual differences, clinical psychology and psychiatrists created the team planning project to investigate the effectiveness of PTSD therapy. The research plan was a *randomised controlled trial* (RCT) typical of medicine and clinical psychology involving a comparison of three types of interactions: prolonged exposure psychotherapy (PE) vs pharmacological treatment with paroxetine (Ph) vs “combination” (COMB) treatment with both methods applied simultaneously.

3. TRAKT-1 program – conclusions – successes

The main results of the study were published in 2015 (Popiel, Zawadzki, Teichman & Pragłowska, 2015). Of the 110 patients who started extended exposure therapy, 72 people (65.4%) completed without PTSD; in the paroxetine group, the

percentage was 43.3% (13 out of 30 subjects) and 51.2% (20 out of 39 subjects) in the combination group. Remission was significantly more common in the extended exposure-only group than in the paroxetine-only group. Differences in remission rates were not significant in comparing combination therapy with paroxetine or prolonged exposure. The NNT value (the number of patients who should receive a given intervention for a specific time to prevent one unfavourable endpoint) is 4.44 for comparing PE with paroxetine alone and 7.9 for combination against Ph. In a follow-up study (F-U) after 12 months, the effects of treatment persisted, and different trajectories of functioning were identified. There were also no significant differences between the types of therapy in the clinical diagnosis of co-occurring conditions after the end of treatment (maintenance or change of diagnosis, assessed only in those who completed treatment with SCID-I and SCID-II).

The achievements of the TRAKT-1 research program include, first of all, the number of patients treated who got rid of PTSD. Then, the dissemination of knowledge about the diagnosis of PTSD (including the publication of the SCID-I and SCID-II diagnostic tools). Finally, the popularisation of the prolonged exposure method in Poland – a significant number of psychotherapists were trained in this method (over 1,300 people were taught only by our team, training in the EP belongs to a standard of postgraduate education in psychotherapy at the School of Psychotherapy Cognitive-Behavioral SWPS University, numerous radio presentations and publications popularising knowledge).

Studies on the effectiveness of therapy have brought new knowledge regarding the comparison of the efficacy of psychotherapy, pharmacotherapy and combination treatment. References to the results of the TRAKT-1 programme can be found in the December 2018 update of the National Institute of Care and Clinical Excellence (NICE) guidelines in the UK for the treatment of PTSD (NICE, 2019) and appear in subsequent meta-analyses and systematic reviews of PTSD therapy worldwide.

4. TRAKT-1 programme – conclusions – limitations

Systemic considerations of all methods of therapy in the area of mental health raise (apart from the apparent determination of effectiveness) the problem of the availability of procedures and personal determinants of the choice of treatment (including the decision to abandon the proposed treatment) by a person suffering from the disorder (Roe & Davidson, 2017).

The issue of the availability of the method for patients is an expression of the extent to which institutions such as the National Health Fund, the Ministry of Health, AOTMiT (*The Agency for Health Technology Assessment and Tariff System*) are interested in data-based psychotherapy methods. On the part of the researchers, we have fulfilled the social obligation. The research has been carried out, the results have been published and are cited, the method is taught at postgraduate studies. Lobbying and political activities that go beyond the research aspect remain.

From the point of view of therapy in the TRAKT-1 program, we encountered three types of failures in therapy – **lack of remission** (i.e. in the diagnosis after therapy, the patient could still be found to meet the criteria for PTSD), **refusal**

to **use potentially effective therapy** and **premature resignation** (*drop-out*), described in detail in the text presenting the main results (Popiel et al., 2015). Analysing the gap between data obtained from scientific research and data from systematic clinical observations, Kazdin (2008) distinguished three sources of therapy data: *evidence-based treatments*, *evidence-based practice*, but also *practice-based evidence*). Qualitative analysis of the content discussed by patients during therapy and data from clinical supervision prompted us to formulate three problems for further research. The first problem concerned patients with assigned responsibility for causing the accident or those who lost their loved ones in the accident. It was a severe sense of guilt reported at the beginning of therapy.

The second serious problem would be to create an offer for patients who justified their drop-out from therapy at various because exposure therapy was too emotionally burdensome (due to the need to confront the memory of a traumatic event). We tried to address these problems to form the basis for further research in psychotherapy. In a small research program, TRAKT-2, we have developed a Polish version of tools for assessing guilt and an additional intervention procedure to work with guilt (Popiel, 2015; Popiel & Zawadzki, 2015).

Changes in the understanding of the structure of PTSD symptoms proposed by the DSM-5 and ICD-11 classifications (Zawadzki & Popiel, 2014), limitations of exposure therapy observed in the TRAKT program and data from the literature on the prevalence of PTSD in emergency services in the absence of effective methods of preventing the disorder formed the basis for formulating the assumptions of the “*PTSD: Diagnosis Therapy Prevention*” program implemented under the Maestro-3 grant awarded to B. Zawadzki.

5. Project “PTSD: Diagnosis-Therapy-Prevention (PTSD: DTP)” within TRAKT-3 program – development of a therapy model taking into account previous limitations. Conclusions – successes

In the part of the project devoted to diagnosis (PTSD-D), diagnostic tools adapted to changes in disorder classification systems (DSM-5), tools for the study of cognitive and personality risk factors for the formation of posttraumatic disorders were developed (Cyniak-Cieciura, Zawadzki & Strealu, 2018). The Therapy section (PTSD-T) included the development of cognitive-behavioural therapy focused on building self-efficacy and appealing to the underlying processes that play a role in sustaining PTSD. The therapy modules included the main therapeutic processes that could be change mediators, distinguished based on a literature review, except for exposure (we wanted to bypass this method to be able to formulate an alternative to the previously studied method (given that the need to return, in imagery exposure, to the traumatic experience was for some patients the reason for giving up therapy).

The effectiveness of the therapy method we developed has been studied compared to psychotherapy by the method of prolonged exposure. The study plan was again typical for RCTs. It included an independent diagnosis and random allocation to two therapy conditions: process-oriented self-efficacy focused cognitive therapy for

PTSD vs the prolonged exposure method (as a method with documented efficacy, it was a control group). One hundred fifty-two patients (69% were women) with PTSD, aged 18–68 ($M = 37.14$; $SD = 11.46$) were qualified for psychotherapy (76 – prolonged exposure, 76 cognitive therapy). In the ITT analysis, an independent diagnostician found that at the time of completion of therapy, symptoms occurred in 81.6% ($n = 62$) who participated in cognitive therapy (PP) and in 78.9% ($n = 60$) of subjects who took part in prolonged exposure (PE) either disappeared completely or did not meet the diagnostic criteria. The difference was not significant, just as the differences in the percentage of people who ended therapy prematurely (drop-out: PE = 14.5%; PP = 9.2%) or still completed it with a diagnosis of PTSD (PE = 6.6%; PP = 9.2%).

The achievements of the TRAKT-3 research program include primarily the number of patients with remission of PTSD symptoms (added to those who ended the TRAKT-1 program without meeting the criteria for PTSD), further dissemination of the trauma-focused CBT (prolonged exposure) in Poland (a growing number of psychotherapists have been trained in this method), and the development of an effective method of PTSD therapy comparable to PE.

Thus, we had data indicating the effectiveness of psychological intervention in treating PTSD, which did not include the need to refer to the memory of traumatic survival as a prerequisite for effectiveness. These data were the basis for developing preventive procedures for people exposed to a traumatic experience due to their profession.²

6. Project “PTSD: Diagnosis Therapy Prevention”. Prevention program “Efficacious under stress”

However, treatment – is always the “final” action. Having knowledge of the risk factors and mechanisms that maintain the disorder is a kind of commitment to use it in the development of methods to prevent the disorder (according to the guidelines of the American Psychological Association, 2014). The aim of the part of the project devoted to prevention (PTSD-P) was therefore to develop and verify the effectiveness of a method of reducing the risk of posttraumatic stress disorder in people who, playing a vital role in society by virtue of their profession, are exposed to traumatic stressors (this group includes “first responders”: ambulance workers, police officers, firefighters, as well as prison guards and soldiers). PTSD is associated with distress, poor functioning and often the reduction or cessation of professional activity (associated with specialised skills), so it is advisable to develop the most effective forms of PTSD prevention.

There are several ways to classify preventive actions in the literature review on preventing disorders. There are preventative actions taken before the onset of symptoms of the disease, aimed at reducing risk factors or strengthening resilience

² All the while, the recommendations emphasise trauma-oriented (and therefore include the need to address the traumatic experience during therapy directly) forms of treatment as documented and recommended for the treatment of PTSD.

(primary prevention), actions taken when the first signals of the disease appear. However, still no specific symptoms; these may be, for example, screening (secondary prevention) and activities referred to as tertiary prevention, the aim of which is to inhibit the progress of the disease and reduce the risk of complications or disability. Another division distinguishes preventive activities covering the entire population (universal prevention), selected groups (selective prevention) and groups at risk of a specific disease (indicated prevention). Concerning posttraumatic disorders, “real” prevention may refer to primary and secondary prevention (Howlett & Stein, 2016). Tertiary prevention, i.e. interventions undertaken after the onset of PTSD symptoms, often described as preventive actions, can actually be considered a form of therapy. The NICE guidelines (2019) published in December 2018 also consider preventative steps. Still, actually, they concern tertiary prevention (impact in a specific situation **after** the traumatic stressor has acted and the (expected) symptoms of an acute stress response occur). They are to protect against the consolidation of symptoms in the form of PTSD and its consequences). Primary interventions are designed to reduce the risk of exposure to traumatic events or to enhance resistance in the context of trauma and may be universal or selective.

The results of previous studies on primary prevention indicated mixed, moderately positive results of pre-traumatic resilience-building programs. They were not methodologically or theoretically homogeneous, usually consisting of psychoeducation and exercises in coping skills. The effects on behaviour change or trauma immunisation were not significant, but several interventions yielded clearly positive results. Skeffington and colleagues published the first randomised controlled trial of first-degree prevention in firefighters until 2016, and the results were not conclusive.

The results of research on posttraumatic interventions for all trauma suffered people, regardless of their specificity (psychoeducation, pharmacotherapy, psychological debriefing along with various forms of crisis intervention), are not only ineffective in preventing PTSD but can sometimes even be harmful (e.g. debriefing, some drugs – such as benzodiazepines). For this reason, in the first weeks after the event, it is recommended first of all to carefully observe the mental state (according to NICE, the so-called *watchful waiting* or *active monitoring*) of all injured persons and – in the event of the occurrence of a clinically diagnosed acute stress disorder (ASD, the main clinical predictor of PTSD) – to undertake trauma-oriented cognitive-behavioural therapy. Therefore, it seemed reasonable to construct a program referring to the mechanisms of maintaining PTSD, to which cognitive-behavioural therapy refers. However, the assumption of primary prevention excludes the processing of the memory of the traumatic experience because... it has not yet taken place.

At this point, the previously described conclusions from TRAKT’s study on PTSD therapy, which indicated the need to develop a treatment in which there would be no requirement to reproduce a traumatic event, supported by the results of a meta-analysis published by Cochrane (Bisson et al., 2013) that indicated the effectiveness of cognitive-behavioural interventions not oriented to trauma, meant that the PTSD-DTP project included the exact psychological mechanisms potentially involved in maintaining PTSD symptoms.

The longitudinal study plan assumed a comparison of the effectiveness of preventive training in a group in which the confrontation with the traumatic stressor associated with the profession is inevitable but has not yet occurred. Therefore, the main theoretical assumptions of the training *Efficacious under stress* referred to the cognitive model of the conceptualisation of PTSD, which is also the basis of therapy. The training "*Efficacious under stress*" was conducted at the Non-Commissioned Officer School of the State Fire Service in Bydgoszcz. Its effectiveness was tested in a *follow-up* study twelve months after starting work as a firefighter (during which a confrontation with a traumatic stressor was assumed).

7. Project "PTSD: Diagnosis-Therapy-Prevention". Prevention program "*Efficacious under stress*". Conclusions – successes

The initial groups (participating in preventive training and without training) did not differ in demographic characteristics, psychological characteristics, and final exams grades in the Firefighter School. The final group (who took part in the follow-up study) did not differ in personality variables and response to a traumatic event from those who did not participate in the follow-up study.

After a year of service in both groups, there were no significant differences in the frequency of job-related and personal traumatisation or the intensity of experienced peri-traumatic emotions. The most important result was that **the training group had lower severity of PTSD symptoms** and a higher level of work engagement. Significant differences in individual categories of PTSD symptoms were recorded for the factor of negative emotions and beliefs and externalisation symptoms. This result indicates that **with a similar level of exposure to traumatic events and a similar intensity of emotions felt during a traumatic event, the group undergoing preventive training showed a higher level of resilience**. This result illustrates the main assumed effect of preventive training, the purpose of which was to prevent the development of PTSD.

Avoiding the experience of emotions as a mood regulation strategy is one of the primary mechanisms in psychopathology (including PTSD) to which the cognitive-behavioural psychotherapies of the first, second, and especially the so-called third wave refer (Hayes & Hofmann, 2018). The tendency to use maladaptive mood regulation strategies (Barańczuk & Zawadzki, 2013) was studied before training and after a year of work. Control of the individual propensity to use a given form of regulation (styles of regulation studied the year before) and correlation between strategies showed significant differences between the control group and the group subjected to the training "*Efficacious under stress*" only in the case of avoidance-oriented strategies. Therefore, the group subjected to the training showed a significantly lower tendency to use maladaptive – avoidance strategies of mood regulation (Barańczuk & Zawadzki, 2013). **These results indicate a positive effect of preventive training in the form of limiting the use of maladaptive forms of mood regulation**, which was one of the assumed effects of training.

The use of interventions based on techniques used in cognitive-behavioural therapy is justified in building resistance. The preventive training “*Efficacious under stress*” surpassed only the standard training used in the PSP in terms of:

- influence on the use of maladaptive forms of mood regulation – significantly reduces the use of avoidance-oriented strategies;
- the impact on the severity of PTSD symptoms after a year of service, during which there was an exposure to traumatic stressors – in the group subjected to training, the severity of PTSD symptoms was lower than in the group of subjects under standard firefighter training.

It is, therefore, one of the first prevention programs with documented effectiveness. Its results have become available and possible to implement thanks to the publication of complete training materials with a discussion in the form of a manual (Popiel, Zawadzki, Pragłowska, Habrat & Gajda, 2019; Popiel, Pragłowska & Zawadzki, 2019).

8. Project “PTSD: Diagnosis Therapy Prevention”. Conclusions – limitations

Training effects require consolidation (the effect of knowledge and skills disappears after a year of training); research would be advisable to assess the replication of the results achieved.

No other effects are known beyond those described in the manual, nor do we know anything about possible recommendations to be used as a standard in emergency services exposed to traumatisation.

RESEARCH WITH IMPLEMENTATION IN THE BACKGROUND

The research conducted over the past 15 years has had a fundamental practical aspect:

- as a result of the therapy conducted as part of our research on the treatment of PTSD initiated, more than 500 patients ended treatment with significant change – the remission of symptoms of PTSD;
- one of the most effective methods of treatment – prolonged exposure – has become more accessible to patients in Poland;
- cognitive therapy developed as part of the TRAKT 3 program is as effective as the PE method of treatment;
- we have data that could form the basis for the development of standards for the treatment of PTSD in Poland;
- cognitive-behavioural therapy methods used in the prevention program “*Efficacious under stress*” have initially been shown to be effective in preventing PTSD in subjects exposed to job-related trauma – firefighters and could be applied in other occupational groups of high exposure to trauma.

The research results and the experience gained during 15 years of research encourage reflection on the problem of “implementations” in psychology. In English, to implement means “to start using a plan or system”, or in other words “to put a plan or system into operation”. The Dictionary of the Polish Language defines “implementation” as “1. teaching someone to perform *routine* activities; 2. taking some action; 3. to start applying something in practice.” If it is possible to talk about *routine* in the context of clinical practice – this definition of implementation has been met. This is the place in which this paper could end. The research results are cited in the literature, the number of trained therapists goes beyond 1,300 people, and the group of psychologists who learn with their own money improves their skills. The greatest reward for researchers is the awareness of so many patients we have helped in the therapy program to free themselves from PTSD. The research results and opinions of firefighters who have completed the preventive training program are pleasing. Publications are read by interested parties – other researchers. After the end of the project, the authors present their research at conferences to which they go already with their own funds or another project because the other one (which brought results) has already ended. Could somebody want more? This aspect is highlighted by David Clark, a British psychologist, the author of a model nationwide (in England) implementation of psychotherapy, the IAPT program (Clark & Layard, 2014a, 2014b). He emphasises that psychologists develop a procedure for therapy and prevention, study its effectiveness, publish the results, and then the financial resources run out. At the same time, by analogy with research in medicine – a pharmaceutical company with the results of research on the effectiveness of a new drug starts allocates enormous resources for marketing and lobbying activities so that this drug reaches a wide range (e.g. it is on the list of reimbursed medicines), preferably during patent protection. Psychological methods of treatment and prevention do not have such a background.

Implementation or a patent? Is it possible to patent a method of psychotherapy?

Despite the analogy – the method of psychotherapy can be subject to copyright. If it has a creator, the method is published. The author enjoys citations and, at best, royalties (although if a grant funds the publication of the results, only satisfaction with citations often remains). Still, it is not protected by a patent like technical inventions. “*European patents shall not be granted in respect of “methods of human or animal treatment by means of operations or therapies and diagnostic methods used on the human or animal body”*” (European Patent Office, <https://www.epo.org/law-practice/legal-texts/epc.html>). The author usually takes care of training in the method for the sake of the method itself and attaches clauses to it to protect the method against distortion. Training becomes the implementation.

In a slightly better situation seem to be publishing houses selling diagnostic methods – protected under the law of copyright protection, but also – for reasons constituting the basis of psychological diagnostics – through advanced procedures limiting access to people who do not have appropriate qualifications. It

should be emphasised that the TRAKT programs have brought many tools that are implemented in the field of psychological diagnostics, like original tools for measuring temperament such as FCZ-KT (R) or instruments adapted into Polish for measuring various aspects of psychopathology such as TRGI, ICARUS, PBQ, BDI-II, PDS-5, CAPS or SCID-I and II.

In a slightly better situation may be also the authors whose method (diagnosis/therapy) has a technological “carrier” that can be subject to copyright protection (obvious) but also patent protection.

What is a measure of the effectiveness of the “implementation” of the method?

A measure of implementation effectiveness can be defined as:

- a) the number of people who have had a documented health (or educational) benefit,
- b) the number of people who have heard about the method,
- c) the presence of the method in the standards of clinical or diagnostic procedures developed by recognised expert bodies (i.e. national or international, which in turn translates into the number of people who can benefit, the distribution of public funds),
- d) financial effect related to the sale of books/articles/training courses/tests?

The indicators mentioned above do not create disjoint categories. They even show a sequence that could make a cumulative route to show the idea of implementation.

The programs: “TRAKT” (therapy) and *Efficacious under stress* (prevention) were a source of experience covering each of the indicators mentioned above.

The number of people who have benefited from documented health benefits due to research on therapy and prevention is discussed above. Our experience in both programs (which is a “problem” for researchers in many countries) is the lack of funds for the promotion of the program and the lack of institutional support at the stage of searching for respondents. The author of the idea of the study should therefore have skills in the field of marketing and promotion in addition to scientific knowledge. After years of experience, it seems that this is the researcher’s skill usually overlooked in the education of future scientists. However, scientists are doomed to develop it – how to attract study participants, how to calculate (“hide”) the process of reaching people studied in a (truncated) budget?

These skills will be necessary to reach a wider audience with information. Reaching with data is an incentive for those suffering from a disorder but by the lack of knowledge not even trying to get help. In the TRAKT program, our voluntarily accepted duties included educational and popularising activities (several nationwide radio and television speeches, information in social media). The author of the idea of the study should add media talent to the skills mentioned above.

The presence of the method in the standards of clinical or diagnostic conduct developed by recognised bodies of experts (see Siwec, Konieczna & Koperny, 2019) is perhaps the most critical indicator of implementation. It seems that

a necessary condition is the publication of research results, which is the essence of the scientific work of the researcher, who in turn previously acquired additional skills in the field of organisation, promotion and media. However, this condition is far from sufficient. The published results of the TRAKT programme are referred to by NICE and several authors of systematic reviews outside the Polish. However, for the therapy method to gain the recognition of decision-makers, additional skills are necessary, this time political and lobbying, whose unsurpassed model may be the authors of the IAPT (Clark & Layard, 2014a; Foa, Gillihan, & Bryant, 2013). The discussion on the legal conditions of psychotherapy (or rather their lack and the consequences of this state in Poland) goes beyond the framework of this text. The Agency for Health Technology Assessment and Tariff System operates on behalf of the Minister of Health, who is not interested in researching effective forms of psychotherapy and prevention in mental health. However, some hope could be brought by the Opinion of the President of The Agency for Health Technology Assessment and Tariff System No. 42/2019 of 29 March 2019 on the draft health policy program entitled *Policy program health in the field of support for paramedics from the Mazowieckie Voivodship in connection with exposure to posttraumatic stress disorder for 2019–2021* implemented by the Mazowieckie Voivodeship (https://bipold.aotm.gov.pl/assets/files/rada/protokoly/2019_RP/Protokol_RP_12_2019.pdf). Arguments justifying the negative opinion about the program included the lack of consideration of data-based methods of diagnosis, therapy and prevention of PTSD (recommended by NICE) – but we do not have positive examples – the introduction of research-supported programs for the treatment and prevention of PTSD.

Polish National Social Security Office (ZUS) statistical data for the first quarter of 2021 contain information on the number and time of sick leave due to “reaction to severe stress and adaptation disorders”. From January to March 2021, 119715 exemptions were issued in Poland for a total of 2,286,620 days (paid from contributions). ZUS data is only a part of reality – they do not include people outside the insurance system – the elderly, students, pupils. But above all, they do not have the enormity of the suffering of the patients themselves and the dysfunctions of entire families. These data are a sufficient argument for intensifying any actions that could facilitate access to effective treatments and prevention of PTSD.³

In a perfect world, information about effective methods of therapy and prevention would attract decision-makers responsible for the adequate distribution of public funds. Trainees researchers, thanks to access to information about the results, respecting copyright, would legally buy methods that help acquire the knowledge necessary for the correct application of the technique (textbooks, tests, training). It remains an open question whether the fight for the implementation of research results rests on the shoulders of scientists who perform these studies? Why not, since the scientist – the creator of the method, has already added organisational, financial, marketing, promotional, media, political and lobby skills to his knowledge – can be therefore considered a Renaissance man and ... should cope on his own.

³ <https://psz.zus.pl/> [accessed: 24.09.2021].

REFERENCES

- American Psychiatric Association (APA) (2013). *Diagnostic and statistical manual of mental disorders. Fifth edition*. Washington: American Psychiatric Association.
- American Psychological Association (APA) (2014). Guidelines for prevention in psychology. *American Psychologist*, *69*, 285–296.
- Beck, A. T., Steer, R. A., & Brown, G. K. (1996). *Beck Depression Inventory Manual* (2nd ed.). San Antonio, TX: Psychological Corporation.
- Beck, A. T., Butler, A. C., Brown, G. K., Dahlsgaard, K. K., Newman, C. F., & Beck, J. S. (2001). Dysfunctional beliefs discriminate personality disorders. *Behavioral Research and Therapy*, *39*, 1213–1225.
- Bisson, J. I., Roberts, N. P., Andrew, M., Cooper, R., & Lewis, C. (2013). Psychological therapies for chronic posttraumatic stress disorder (PTSD) in adults. *Cochrane Database of Systematic Reviews*, *12*, DOI: <http://dx.doi.org/10.1002/14651858.CD003388.pub4>.
- Collins, P. Y., Patel, V., Joestl, S. S., March, D., Insel, T. R., Daar, A. S., Scientific Advisory Board and the Executive Committee of the Grand Challenges on Global Mental Health, Anderson, W., Dhansay, M. A., Phillips, A., Shurin, S., Walport, M., Ewart, W., Savill, S. J., Bordin, I. A., Costello, E. J., Durkin, M., Fairburn, C., Glass, R. I., Hall, W., ... Stein, D. J. (2011). Grand challenges in global mental health. *Nature*, *475*(7354), 27–30. DOI: <https://doi.org/10.1038/475027a>.
- Cyniak-Cieciura, M., Zawadzki, B., & Strelau, J. (2018). The development of the revised version of the Formal Characteristic of Behaviour – Temperament Inventory FCB-TI(R). *Personality and Individual Differences*, *127*, 117–126. DOI: <https://doi.org/10.1016/j.paid.2018.01.036>.
- Cyniak-Cieciura, M., Staniaszek, K., Popiel, A., Pragłowska, E., & Zawadzki, B. (2017). The structure of PTSD symptoms according to DSM-5 and IDC-11 proposal: A multi sample analysis based on PDS-5. *European Psychiatry*, *44*, 179–186. DOI: <https://doi.org/10.1016/j.eurpsy.2017.02.491>.
- First, M. B., Spitzer, R. L., Gibbon, M., & Williams, J. (1996). *Structured clinical interview for DSM-IV axis I disorders-Patient edition (SCID-I/P, Version 2.0)*. New York: Biometrics Research Department, New York State Psychiatric Institute.
- First, M., Spitzer, R., Gibbon, M., Williams, J., & Benjamin, L. (2007). *Structured clinical interview for DSM-IV axis II disorders (SCID-II)*. Washington, DC: American Psychiatric Press.
- Foa, E. B., Gillihan, S. J., & Bryant, R. A. (2013). Challenges and successes in dissemination of evidence-based treatments for posttraumatic stress: lessons learned from prolonged exposure therapy for PTSD. *Psychological Science in the Public Interest, Supplement*, *14*(2), 65e111.
- Foa, E. B., Hembree, E. A., & Rothbaum, B. (2007). *Prolonged exposure therapy for PTSD: Emotional processing of traumatic experiences: Therapist guide*. New York, NY: Oxford University Press.
- Foa, E. B., McLean, C. P., Zang, Y., Zhong, J., Rauch, S., Porter, K., Knowles, K., Powers, M. B., & Kauffman, B. Y. (2015). Psychometric properties of the Posttraumatic Stress

- Disorder Symptom Scale Interview for DSM-5 (PSSI-5). *Psychological Assessment*, 28(10), 1159–1165. DOI: <https://doi.org/10.1037/pas0000259>.
- Hayes, S., & Hofmann, S. (2018). *Process-based CBT: The science and core clinical competencies of cognitive-behavioural therapy*. New York: New Harbinger Publications.
- Howlett, J. R., & Stein, M. B. (2016). Prevention of trauma and stressor-related disorders: A review. *Neuropsychopharmacology Reviews*, 41(1), 357–369.
- Kazdin, A. E. (2008). Evidence-based treatment and practice: New opportunities to bridge clinical research and practice, enhance the knowledge base, and improve patient care. *American Psychologist*, 63(3), 146–159.
- Layard, R., & Clark, D. (2014a). Why more psychological therapy would cost nothing. VOX CEPR's Policy Portal. Available online at: <http://www.voxeu.org/article/psychological-therapy-costs-nothing> [accessed: 27.09.2021].
- Layard, R., & Clark, D. M. (2014b). *Thrive: The power of evidence-based psychological therapies*. London: Penguin.
- National Institute for Health and Care Excellence. (2019). Posttraumatic stress disorder (NICE Quality Standard No. 116). Available online at: <https://www.nice.org.uk/guidance/ng116> [accessed: 27.09.2021].
- Popiel, A. (2014). Cognitive therapy for trauma-related guilt in people with PTSD. *Psychiatria Polska*, 48(3), 615–625.
- Popiel, A., & Zawadzki, B. (2015). Psychometric properties of the Polish version of the “Trauma-Related Guilt Questionnaire” (TRGI-PL). *Psychiatria Polska*, 49(5), 1089–1099.
- Popiel, A., Zawadzki, B., Bielecki, M., Mroziński, B., & Pragłowska, E. (in press). Can the experience of a pandemic lead to post-traumatic stress disorder (PTSD)? Results of the COVID-STRESS study. In: W. J. Paluchowski, L. Bakiera (Eds.), *Psychosocial image of the first wave of the COVID-19 pandemic in Poland*. Poznań: Wyd. UAM.
- Popiel A., Zawadzki B., Pragłowska E., & Teichman Y. (2015). A randomised controlled trial of prolonged exposure, paroxetine and combined treatment for PTSD following a motor vehicle accident – The “TRAKT” Study. *Journal of Behavior Therapy and Experimental Psychiatry*, 48, 17–26.
- Popiel, A., Pragłowska, E., & Zawadzki, B., (2019). *Efficacious under stress. A personal handbook*. Gdańsk: GWP.
- Popiel, A., Zawadzki, B., Pragłowska, E., Habrat, P., & Gajda, P. (2019). *Efficacious under stress. PTSD prevention program for people exposed to job-related traumatisation*. Gdańsk: GWP.
- Roe, D., & Davidson, L. (2017). Noncompliance, nonadherence, and drop-out: Outmoded terms for modern recovery-oriented mental health. *Psychiatric Services*, 68(10), 1076–1078.
- Siwec, J., Konieczna, M., & Koperny, M. (2019). Good practice for guidance development – review of consensus methods. *Zdrowie Publiczne i Zarządzanie*, 17(4), 217–229. Available online at: www.ejournals.eu/Zdrowie-Publiczne-i-Zarządzanie [accessed: 27.09.2021]. DOI: <https://doi.org/10.4467/20842627OZ.19.023.12185>.
- Skeffington, P. M., Rees, C. S., Mazzucchelli, T. G., & Kane, R. T. (2016). The primary prevention of PTSD in firefighters: Preliminary results of an RCT with 12-month follow-up. *PLoS ONE*, 11(7). Article ID e0155873.

- Strelau, J., & Zawadzki, B. (2005). Trauma and temperament as predictors of posttraumatic stress disorder after a disaster. *European Psychologist, 10*, 124–135.
- Symon, E. (2017). *Road accidents in Poland in 2017*. Warsaw: Department of Prevention in Road Traffic of the Prevention and Road Traffic Office of the Police Headquarters.
- von der Warth, R., Dams, J., Grochtdreis, T., & König, H. H. (2020). Economic evaluations and cost analyses in posttraumatic stress disorder: a systematic review. *European Journal of Psychotraumatology, 11*(1), 1753940. DOI: <https://doi.org/10.1080/20008198.2020.1753940>.
- Westra, H. A., & Dozois, D. J. A. (2006). Preparing clients for cognitive behavioural therapy: A randomised pilot study of Motivational Interviewing for anxiety. *Cognitive Therapy and Research, 30*(4), 481–498. DOI: <https://doi.org/10.1007/s10608-006-9016-y>.
- Weathers, F. W., Blake, D. D., Schnurr, P. P., Kaloupek, D. G., Marx, B. P., & Keane, T. M. (2013). *The Clinician-Administered PTSD Scale for DSM-5 (CAPS-5)*. [Assessment] Available online at: www.ptsd.va.gov [accessed: 27.09.2021].
- World Health Organization (WHO) (2018). *ICD-11. International Statistical Classification of Diseases and Related Health Problems. Eleventh Revision*. Geneva: WHO.
- Zawadzki, B., & Popiel, A. (2014). At the crossroads: the structure of posttraumatic stress symptoms (PTSD) after DSM-5 and before ICD-11. *Nauka (Science), 4*, 69–86.
- Zawadzki, B., Popiel, A., & Prąglowska, E. (2021). Temperamental, emotional reactivity and symptoms of posttraumatic stress disorder (PTSD): A summary of the results of research conducted in the first twenty years of the twenty-first century. In: M. Dragan, & M. Rzeszutek (Eds.), *Disorders related to trauma. Conditions and prevention. A book dedicated to Prof. Maja Lis-Turlejska* (pp. 67–96). Warsaw: Wydawnictwo Naukowe Scholar.