

**The Impact of Simplified Inference Methods on the Results of Research on the Sense of Security****Aleksandra Zajac, Ph. D\***

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**ABSTRACT**

*The article highlighted the doubts and limitations of the traditional way of conducting surveys on fear of crime by political scientists and criminologists. Therefore, it was proposed to introduce the concept of bounded rationality to check the adequacy of these studies, and the experiment was conducted to demonstrate the impact of the framing effect and a simplified inference method, the availability heuristic on the formulation of answers in classic survey questions concerning fear of crime. The article discussed the results of the author's own research and made suggestions for further possible research on heuristics and fear of crime, and indicated the implications of the results for the crime fear survey practice.*

**Keywords: heuristics, crime fear, security, criminology, psychometric research in security science****Introduction****Research on the Sense of Security-Doubts**

Modernization processes initiated by the "industrial revolution" forced irreversible changes in the way of life of societies in the 19th century. As a side effect, the "dangerous class of criminals" was created that posed a real danger to social and economic stability. Advances in social sciences led to the development of criminology with the first crime analysis to better impact the safe functioning of society. The rapid increase in common crime resulted in a renewed interest in this subject in the 1960s in the USA and in the 1970s and 1980s in Great Britain, which led to the consolidation of the problem and research on fear of crime as an important area of criminology, for which *status quo* the authors want to show some limitations and doubts in this article. The return of the fear of crime in the second half of the 20th century in science and politics was justified by real social concerns about an objective fact the growing number of crimes. In 1965, the Gallup public opinion research center introduced a question in a survey, the wording of which is repeated in similar studies to this day: "Are there areas in your neighborhood where you would be afraid to walk alone after dark?". In 1967, the US

Presidential Commission for Law Compliance and Justice System was appointed, whose work has focused on widespread social unrest and the growing number of crimes; the polls were conducted, which indirectly initiated the National Criminal Victimization Survey conducted to date. A significant part of these unfavorable phenomena, the spread of crime and the fear of it was related to the racial social crisis, which also sparked a discussion about the methods of police work and punitive judiciary.

After dealing with the wave of crime and social unrest in the 1960s, research on crime fear has remained an integral part of social analyses in the United States. From today's perspective, it can be stated according to M. Lee that it was science that created the construct of crime fear, somehow in isolation from the crime itself (Lee 2001, 480-481). It became the object of research, the results of which were widely publicized and commented in the media, and then inevitably they were the subject of interest and reaction of politicians, also unfortunately through their misuse. A clear example is the assumption of government in Great Britain in 1979 by Margaret Thatcher and the Conservative Party, made on the wave of slogans about the government's insufficient response



to crime and postulates to restore the sense of security to ordinary citizens (Ostaszewski 2014, 72). In the following decades, scientists provided useful definitions of fear of crime in the light of forensic theories, worked on hypotheses regarding the determinants of this fear, methodologically perfected empirical research the achievements of sciences are unequivocally positive. However, on the border between science and politics, that is, using the results of scientific research in society management, it was possible to observe unfavorable phenomena that still appear in an updated form, not only in the USA or Great Britain. It was the so-called crime fear feedback loop, defined by the aforementioned M. Lee (Lee 2001,480-481). For example, a manipulated presentation by survey agencies of the results of surveys on fear of crime in the 1970s in the USA led to social panic unjustified by the actual crime index, and thus created the problem of social anxiety about crime as a separate issue, detached from crime (it was related with the police crisis, with observed attempts of solving it through proposing, apart from the reactive police, “zero tolerance” *community policing*, aimed not at combating crime, but at preventing and reducing anxiety and improving the quality of life. Another example: after September 11, 2001, a new increase in fear led to its politics (*politics of fear*) by politicians obtaining the consent of the inhabitants to the provisions limiting civil liberties and rights, and extending the state’s control over security. In Poland, the fear of crime emerged in research and politics in the 1990s, when organized and brutal crime occurred during the transformation, and the police, as a new formation that replaced the militia operating in the People’s Republic of Poland, did not yet have the *know-how* to combat crime in a democratic and capitalist society; part of this fear was certainly the result of a decline in social security, a deregulation of the media monopoly characteristic of the communist regime, etc.; after fighting this wave of crime, also in Poland, due to the right-wing grouping coming to power, a reference to the fear of crime and a postulate to increase the punitiveness of the state appeared twice, regardless of socially beneficial crime statistics – once in 2006-2008, and again from 2015 and now; announcing the success of the police and the authorities in connection with the high sense of security of Poles (a category used in Poland as often, if not more often than fear of crime), the police postulating “zero tolerance” and referring to fears and promises to secure them as an election strategy (e.g. in 2015, based on the fear of immigrants that are strange in terms of civilization) are elements of the Polish *politics of fear* that may arise based on the concept and research of fear of crime. Such political manipulation of societies through the use of research on fear of crime is one of the circumstances that should pertain to researchers dealing with this topic.

#### **Research on the Sense of Security-Limitations**

In connection with the study of fear of crime, other kinds of limitations are also worth considering. Let us

highlight a few points for a better underpinning of the claim that the current research on the fear of crime is limited.

Fear of crime as a type of fear felt by an individual in society in numerous concepts of the individual: philosophical, psychological, sociological, or criminological, consists of two components: specific, having its object, e.g. a given crime, also characteristic of animals, and generalized, aimless, related to the consciousness of the individual, closer to anxiety and a sense of insecurity. Nowadays, many more people suffer from personality disorders, including anxiety disorders, and numerous psychiatric diagnoses also contain an anxiety component: anxiety in depression, fear of loneliness, social phobia, anxiety in neuroses. Such fears have an impact on the subjective assessment of the sense of security, and fear of crime, which can only be a substitute name for an undiagnosed fear, as in most law-abiding countries, crime is effectively controlled by state services: the police, the judiciary, penitentiary services.

From yet another perspective, it is possible to justify the growing fear in a society that seems to have no specific object. Such possibilities are provided by the sociological perspective that brought and propagated the vision of a globalized, post-modern society, risk society at the end of the 20th century and at the beginning of the 21st century (U. Beck), in which threatening phenomena are fluid (Z. Bauman) and it is impossible to effectively control them, or even to appoint entities responsible for this control. Therefore, there is a culture of uncertainty or a culture of fear, which relies on constant risk estimation and attempts to protect oneself, which may only be incomplete, so that fear is treated pessimistically as an inevitable component of human reality. Can this contemporary human condition distort the results of surveys on anxiety, including the fear of crime? In psychology, on the other hand, there are tools such as the STAI (State-Trait Anxiety Inventory) by Ch. Spielberger (1999). STAI is used to study anxiety as a transient state of the individual and as its relatively constant feature and is characterized by good accuracy and reliability. On the other hand, the transactional and informational models of stress, as well as cognitive models of emotions, show that the essence of stress and emotions (also negative ones, including anxiety) is both the perceived threat resulting from the external situation and the perceived ability of the individual to cope with this threat. Both of these elements are based on the cognitive assessment mechanism, so each individual may interpret the threat and his/her abilities in the same or a similar situation differently. Objective factors are only partially responsible for the level of anxiety that arises in this way.

It should also be taken into account that fear, even existential, is characteristic of a human being. In societies, it plays a symbolic role, helping to give meaning, guard the boundaries of that society and maintain social cohesion. Even moral panics, as defined by S. Cohen (Cohen 1972, 9), if not caused by manipulative media or power, have their

justification in the course of social life. It is all the more appropriate to manage (Burgess 2014,10) the fear felt by members of society, and not to conduct political crusades to eliminate it. If the phenomenon of fear is not illuminated and made aware to members of society in all its complexity, it will be easier to manipulate the fear of crime politically, for people will all the more use this category as a possible and concrete expression of their various misgivings, and an expression of fear that is taken by policymakers.

In the first comprehensive monograph on fear of crime, published in Poland in 2014, taking into account Polish and world literature up to this date, the author, P. Ostaszewski, collects knowledge on the formulation of questionnaire questions. Of course, the complete questionnaires, which most often contain more questions, are not included here, to compensate for the commonly respected calculation of crime fear measures, which divide them into affective, cognitive, and conative (e.g. in the taxonomy of U. Gabriel and W. Grave) (Gabriel and Grave 2003, 608). The most important questions used in these studies are a (possibly modified) repetition of the questions posed for the first time in the 1960s. Here are some types of questions (Ostaszewski 2014, 121-130) that are repeated frequently:

- *What do you think is the most important problem in this country today? [The Gallup Poll, USA]*
- *How safe do you feel when walking alone in your neighborhood after dark? [Presidential Committee for Compliance with Law and Justice System, the USA]*
- *Do you think Poland is a safe country to live in? [Centre for Public Opinion Research (CBOS), Poland]*
- *Are you concerned that you may become a victim of crime? (Here, crimes may be enumerated and responses to be selected from the lowest to the highest level of fear.) [National Crime Victimization Survey, USA; CBOS, Poland; Public Opinion Research Centre (OBOS), Poland]*
- *Sometimes people wonder if they will become a victim of crime in the future, or whether they will be seriously harmed or otherwise injured. How do you estimate the probability that shortly.... (Here the district is specified and the crimes are listed, and the possibility of answering from 1 to 5 determines the probability level; one can also answer 7, i.e. I don't know.) [InSec, Kraków edition 2002].*
- *Is your home/flat protected by the following measures? (A list of possible protection measures comes here.) [International Crime Victim Survey, Polish edition]*

Regarding the questionnaire method itself, it is worth clarifying that psychometrics allows for the creation of questionnaires with high reliability and validity. These are also the questionnaires of crime fear research used in professional research centers. The question arises as to the effectiveness of introspection and the repeatability of measurement conditions

that may influence individuals' claims about fear of crime. In the methodology of psychological research, a lot is said about it, in psychometry, even the best-structured questionnaires are susceptible to the distorting influence of external factors, therefore extensive instructions and recommendations regarding the conditions in which these questionnaires should be conducted are used (e.g. Hornowska, 2010; Irwing et al., 2018). The influence of simplified methods of inference, the approximation of which is presented later in the article, is possible here. In group studies, the influence of individual factors is most often limited thanks to randomization: a random sample is to offer an even distribution of the influence of individual factors and external conditions, which in theory should be randomly distributed above and below the obtained result, without affecting the mean. However, this will not be true if the influence of external factors is systematic, e.g. a recent media message affecting the entire sample (e.g. Brzeziński, 2002, 2015).

In the face of these traditional questions from crime fear surveys, researchers raise many various doubts, ranging from focusing on a feeling of fear instead of a specific crime, through the doubt of terms such as "alone", "after dark", "neighborhood" or complicating the matter by using conditionals (do you feel/would you feel apprehensive?), ending with cases when people do not have an opinion, and the questionnaire allegedly forces it on them, ignoring the possible answer regarding the respondent's ignorance. An important issue of psycholinguistics appears here – the same question formulated in the affirmative (are you afraid) or negative (are you not afraid) may generate different results. The question "how safe does you feel..." is problematic in this sense which presupposes that we feel safe and not threatened. Some additional doubts will be presented later in the article based on the concept of bounded rationality.

At this point, one can only express an intuitive thesis, taking into account the above reflection on the types of fear present in contemporary society. Well, when one considers, for example, the "anxiety index" from the first National Criminal Victimization Survey of 1967, which takes into account five factors: the probability of being beaten, the nuisance of neighbors, probability of moving due to crime threat in the area, the importance of the security problem in the inhabited area and the importance of moral characteristics of the neighbors (Ostaszewski 2014, 69), there is a blatant inadequacy of such premises for assessing anxiety to contemporary realities. Perhaps it is worth going beyond the research on fear of crime conducted so that their results can be operationalized by state services because then they must necessarily take into account hard categories, such as crimes or criminal conditions. After all, the police can react only to such cases? If nowadays people are much more afraid of phenomena or unfavorable possibilities of the development of the social world (they often cannot name what they are afraid of), and less of the crimes themselves, it would certainly be valuable to find a way to



investigate this fear. Other assumptions are possible. For example, strong anxiety related to issues other than crime (e.g. economy, war, disease, epidemic...) may, by contrast, and adaptation, decrease the anxiety related to crime – we simply do not have time to worry about it anymore, since there are other threats. Research in such areas would be valuable in criminology and security sciences, going beyond the traditionally understood fear of crime. They will not produce results that can be directly politically addressed, but this is not entirely a disadvantage, since the research results so far have been used politically in a questionable way, causing a feedback loop. Certainly, this would be research that science has been called for, i.e. basic research, carried out selflessly, that is, without a specific purpose for the future implementation of the results, although the applicability of such discoveries to the practice cannot be ruled out. In psychology, research is conducted on the general causes of anxiety in the population. There is a need for a similar research attitude in security sciences.

Moreover, the researchers of the fear of crime themselves seem to mark the same path for the development of their subdiscipline. S. Walklate and G. Mythen in their article (Walklate and Mythen 2008, 221) give recommendations for the future of crime fear survey research. Among other things, they write about the fact that experiencing fear should be located in everyday life situations and there examine this sense of security of citizens, not in the hypothetical, potentially risky situations mentioned by the study. They further point to two other issues that correspond to what will be written in the next section of the article about simplified methods of inference: they postulate an analysis of the process of experiencing and undergoing fear of crime and rethinking the relationship between an individual's risk assessment and anxiety (Ostaszewski 2014, 131). (Models of cognitive assessment in psychology show that an individual's risk assessment and level of anxiety are interrelated, but so far this has not prompted researchers in the field of criminology or security sciences to consider how this risk is estimated by an individual and how this respect translates into the level of fear of crime at a reasonable approximation.) If and as long as something does not change in these fields, then, it seems, the most adequate method of studying fear of crime remains the juxtaposition of many research methods, such as participant and non-participant observation, in-depth interviews, document analysis, as done by W. G. Skogan and M. Maxfield, or what R. Pain calls ethnographic research and finds promising (Pain 2000, 369). However, some researchers point out directly (Schneier 2008, 50-51) that one of the most valuable research directions would be to learn about the impact of simplified inference methods on individual risk estimates and on the expressed preferences regarding the recognition or non-recognition of phenomena as dangerous. We now turn to discuss what the concept of bounded rationality has to offer to security science.

## **The usefulness of the Concept of Bounded Rationality in Security Sciences**

The concept of *bounded rationality* was first defined by H. A. Simon in the 1950s (Simon, 1956) as a critique of omnipotent rationality present in analyses of decisions made by *homo oeconomicus* published in works on classical economics and in opposition to decisions by maximizing the expected utility (Von Neuman and Morgenstern, 1947). The idea of *homo oeconomicus* assumed that a rational decision-maker operates based on Bernoulli's mathematical model of expected utility, calculating the value of each of all possible options by multiplying the utility of each consequence and the probability of its occurrence. It was assumed that *homo oeconomicus* collects and immediately processes all possible information to obtain the aforementioned utilities and probabilities. Although this idea was very useful in the development of mathematical models in economics, it is difficult to defend its validity taking into account basic knowledge of cognitive psychology. After all, the decision-maker idealized in classical economics cannot have comprehensive knowledge, nor can it unequivocally imagine and estimate the probability of the future course of events, nor does it consider all possible alternatives, because there are simply too many of them and finding them would cost an excessively long time and cognitive resources. Moreover, the limited rationality itself has been strongly supported by research in cognitive psychology on memory capacity, attention field, information processing efficiency, controlled and automatic processes, and cognitive control clearly showing that mental resources are limited (e.g. Kahneman, 2012; Gigerenzer and Goldstein, 2002; Cowan, 2016; Kane et al., 2001). Therefore, according to H. A. Simon, the principle of making decisions is not maximization, but *satisficing* (a combination of the English *suffice* and *satisfy*) (Selten 2002, 14).

The further development of these intuitions in the field of psychology, resulting in the emergence of behavioral economics, took place thanks to, among others, the cooperation of D. Kahneman and A. Tversky in the 1970s, who presented the theory of perspective (Kahneman and Tversky 1979), explaining the way of making decisions under risk conditions, which, as classical economists believed, is not consistent with the theory of expected utility. The achievements of these two researchers are the most famous, but they are certainly not the only ones worth mentioning. It was also important to present the Allais paradox concerning the selection of scenarios for winning the lotteries, contrary to the theory of expected utility (Allais, 1953) or the later works of R. Thaler, D. Ariely, or R. Shiller. The perspective theory itself has been subject to competition in behavioral economics in the form of, e.g., *rank-dependent utility theory* (Quiggin 1982, 1993), which prompted the authors of the perspective theory to make some modifications towards the *cumulative prospect theory* (Tversky and Kahneman, 1992). In the context of broader decision-making,



it is also worth mentioning the departure from the additive model in favor of the additive difference model (Tversky, 1969) and then the elimination model by aspects (Tversky, 1972), which were increasingly characterized by the satisfaction principle. According to the originally presented theory of perspective, the so-called editing phase, taking into account the effects of framing and some simplifications in the data, affects the final preferences of decision-makers. In the original presentation of the theory of perspective, there are no simplified methods of inference, i.e. the so-called heuristics, discovered in the course of the development of behavioral economics, which are central to this article. In the research underlying the Tversky and Kahneman paper from 1979, the probability data was known from the description, and heuristics work most strongly under conditions of uncertainty when the decision-maker needs to collect the data himself. Gigerenzer and Todd (1999) directly write about it.

Researchers, including D. Kahneman, strongly argue for the distinction between fast (intuitive) and free (analytical) minds, the spontaneous use of the former leads to errors, biases, or simplifications (Kahneman 2012, 29-43). Heuristics then became the object of further research in themselves, the impact of numerous such simplified inference methods was discovered and studied, including the cooperation of the two mentioned researchers with P. Slovic, which resulted in the joint publication of the book in 1982 (Kahneman, Slovic and Tversky 1982). P. Slovic is one of the discoverers of affect heuristics important from the point of view of risk assessment of threats (Finucane, Alhakami, Slovic and Johnson 2000). Behavioral economics continued to develop (including names such as R. H. Thaler or C. S. Sustain), while public administration, health care, other areas where decisions are made, implemented solutions reducing the negative impact of heuristics or effects or making them beneficial (a simple example may be the introduction of a socially beneficial option in the online form as the so-called default choice, often ultimately left also by consumers due to the lack of discernment, haste or laziness, based on a bias known as the status quo effect, i.e. preferences towards option imposed in case of difficult or unclear problems).

Another approach to heuristics, referring to the achievements of H. A. Simon, has been presented by G. Gigerenzer, who recognizes that some smart heuristics or rules of thumb for making a choice may prove useful and time-saving in particular areas. An individual or a given institution should have the so-called adaptive toolbox, i.e. a box with tools that can be adapted or used in a given situation, in a given field, and these tools are different heuristics (Gigerenzer 2002, 41-42). They can help in choosing because, as G. Gigerenzer explains, H. A. Simon's bounded rationality is nothing else than ecological rationality - H. A. Simon wrote about rationality as a pair of scissors with two blades, one of which is reason and the other - environment (Engel and Gigerenzer 2006, 10). Both P. Slovic and G. Gigerenzer are

researchers who use their discoveries in analyzing the perceptions and risk estimates made by individual entities and in analyzing the methods of risk communication. Bounded rationality and heuristics are tried in many areas, for example in criminology and with an application for real police investigative work, for example, the works of David Canter.

This is a good time to introduce some simplified methods of inference and effects and show how they can be useful in trying to change and improve the survey questions about fear of crime.

The premise of the availability heuristics is that we consider easy-to-recall things to be frequently repetitive and therefore more likely. It involves using mental availability as a determinant of response. The frequency of a given class of phenomena or the probability of an event is estimated based on the ease with which the respondent can recall a suitable example (Tversky and Kahneman 1982, 10-14). The examples from recent times seem clearer to the mind, as do the examples of spectacular events, which inevitably affect the inference. It is also possible to provoke the conditions in which questions are asked (music, good mood caused by a certain memory), greater mental availability of examples. There is also something like the search set, i.e. setting mental search filters, e.g. searching for examples in objectively more frequent contexts again increases the impression of availability. Sometimes real examples are replaced by imaginary examples, which are used to answer after performing illusory correlation and confirmation (Chapman, 1967; Plous, 1993; Wason, 1968). Thus, in summary, the response dictated by the availability heuristics is influenced by finding, construction, association, the latter being one of the memory learning strategies used since childhood, so it is no wonder that it so often prevails in spontaneous mind operations (Tversky and Kahneman 1982, 163-164). False memories, disinformation, and suggestibility are also an issue related to the availability heuristic. Research by G. Gudjonsson (1997) clearly shows that the way the question is formulated may lead to false testimony and erroneous recall of crime-related situations (in eyewitnesses). It is worth mentioning that another heuristic particularly active in estimating the probability of a given phenomenon A based on another phenomenon B is representativeness or similarity. In representation, similarity and connotational distance are assessed, while in availability, the accessibility and associative distance are assessed (Tversky and Kahneman 1982, 163).

Priming, i.e. the use of cognitive activation of memory content, is directly related to the availability heuristic. Most often, information from the environment (stimulus) paves or activates certain contents in memory. It is based on an association of the information from the environment (e.g. a question asked in a survey) with an idea lingering in the mind, without being aware of taking this step (Bargh and Pietromonaco 1982, 437). Activated content is easier to recall. Then some ideas pave the way for the next in terms of semantic or associative closeness, with experiences of

repeatedly recalling these ideas in a duet, with perceived similarity of words. Such activation is similar to the circles propagating across the surface of the water, reaching places in a vast network of connections (Kahneman 2012, 73). It is worth mentioning here the other phenomena: the halo effect, following the cognitive ease and the passive replacement of questions in polls with those that are associated with the respondent. The halo effect and the ease of processing are based on the need for cognitive closure and the need for meaning. Cognitive closure (Webster and Kruglanski, 1994) and the need for structure (Neuberg & Newsom, 1993) are the motivations that push people very strongly towards simplification. The halo effect is also related to social motivation – the desire to turn the beautiful into good as well.

Let's recall one common question in security research: "Sometimes people wonder if they will become a victim of crime in the future or otherwise be seriously harmed or injured. How do you assess the probability that shortly... (you will become a victim of this and that crime)". From the point of view of the adequacy of the results of surveys on the sense of security, it would be worth finding out what analytical or spontaneous process hides behind the answer to the question by individual probability estimation. It would be interesting to detect or not detect that in the case of crimes and events assessed as very probable, in the second step the respondent will add that he can recall so many examples of such events in his head. Additionally, it would be valuable to know about sources of information and media materials or content connections that could influence the estimate made. The rather complicated way of formulating this question may impose another possibility: the respondent may wonder about examples of people who wonder whether they will become victims of a crime. Such treatment of the question by the respondent may also work based on the availability effect if he knows a lot of people worried about safety.

Another phenomenon is the affect heuristic. It is based on the use of emotional reaction in estimating the probability of being threatened. P. Slovic distinguishes such an estimate as one of the methods next to risk analysis and next to politically implied risk (Slovic et al. 2004, 317). Although with complex phenomena, analytical work on risk estimation is undertaken and shared, the majority of the population is based on the intuitive risk assessment, i.e. risk perception and this is probably the cause of such a high degree of anxiety in American society (Slovic 2000, 220). Threats that evoke a greater sense of terror are assessed as occurring more often and posing a greater threat to the studied population (Pachur, Hertwig, and Steinmann 2012, 315). An unfavorable affective response will be greater when children are at risk or other people are at risk in general, which is not necessarily a sign of their greater exposure (Schneier 2008, 54). P. Slovic writes about affect, that is, a strong emotional reaction, which sometimes does not allow the rational, analytical component to resonate at all in the formation of a response to risk

assessment. An unfavorable event may be a signal received by a given industry, community, and more broadly (Slovic 2000, 227). According to P. Slovic (Slovic 2000, 221-222), but also with the discoveries concerning the social role of the arguments of H. Mercier and D. Sperber (Mercier and Sperber 2011, 63-64 and 68) and the so-called confirmation error (Wason 1960) one assumes that this type of spontaneous beliefs is difficult to eliminate even by presenting facts because only those facts that support previous intuition are considered. Research shows that negative affect is associated with reflectivity and deep analysis of the problem, while positive affect promotes heuristic, simplified inference, cognitive closure, and thoughtlessness. Moreover, it is easier to recall events in line with our current emotions emotions are one of the guidelines for remembering (Tulving, 1979 et al.)

Recalling a typical survey question: "How safe do you feel walking alone in your neighborhood after dark?", it would be worth finding out to what extent the answer is influenced by affect, and to what extent by the experience or awareness of the neighborhood situation from the safety point of view. It would be valuable to know how a high estimate of effect risk would be affected by obtaining trusted statistical data contradicting this spontaneous estimate. This question will also be influenced by the psychological availability discussed above: this question will work differently in winter when darkness comes early and such situations occur often, and differently in summer.

A classic example of another effect, that is framing, or the framing effect is called the problem of the Asian disease (Kahneman and Tversky, 1981), in which only a shift in the weight of the decision was manipulated (between "200 out of 600 people will live" and "400 out of 600 people will die"), obtaining different answers. The above-mentioned finding in the field of psycholinguistics is related to this the same question formulated in the affirmative (are you afraid) or negative (are you not afraid) may generate different results. Another example of this type of effect is the use of confirmation in the question, which focuses on searching for facts that confirm this confirmation. Referring once again to the authentic question from the questionnaires: "Do you think Poland is a safe country?" it is possible that the use of two opposing different confirmations: "How safe do you feel? and "How threatened do you feel? will produce non-complementary results, i.e. the degree of danger and safety will not add up to 100% of the feeling. Since it can be concluded from earlier attempts to formulate these questions that men in particular, when asked about their sense of danger, tend to type zero percent without hesitating, just because they are reluctant to admit they feel threatened, perhaps an alternative wording would be: "To what extent do you think that Poland is a country that ensures the security of its citizens?" and "To what extent do you think that there are threats in Poland that are insufficiently addressed by the state?". However, in the case of such questions, another problem can arise: the answer will

depend on the political preferences of the respondent. The essence is to ask questions possibly not burdened with presuppositions and social expectations or to use a longer questionnaire in which questions are asked in both ways (about safety and threat) and you can draw an average or infer about the self-presentation tendencies of a given respondent.

Anchoring and adjusting heuristic constitute another issue, that is, putting in the question some arbitrarily chosen number around which the answers oscillate regardless of being quite random (Tversky and Kahneman 1982, 14), (e.g. How much police intervention has occurred recently in your district? Was it more or less than 64? while in the second case you can ask: Was it more or less than 7?)

## Materials and Methods

Summarizing the considerations made so far and conceptualizing the most important issues to conduct scientific research, the following was established: the research problem discussed in this article is the inadequacy and insufficiency of the current, i.e. traditional, method of conducting surveys on fear of crime. The research objective was to initially determine, based on simple studies, the impact of simplified inference methods and other effects on the answers given in traditional crime anxiety surveys, and to evaluate the results in terms of the prospects of further studies of this type and to improve the method of assessing crime fear in the population in practice. The research hypothesis established for the study was: the presence of phrases inducing the availability heuristic and the framing effect in the questions influences the assessment of fear of crime in the respondents' answers.

To conduct the research, the experiment method with the use of Microsoft Forms was used. The participants of the survey were students of State Security of two Polish universities. The sample consisted of  $N = 78$  participants (36 in the experimental condition and 42 in the control condition). Demographic data were not collected to guarantee anonymity and facilitate freedom of expression of the measured opinions, as no predictions based on demographic variables were made. The experiment was carried out remotely due to the epidemiological situation related to COVID-19. The epidemic was treated as an additional advantage of the study, as the possibility of repeating the experiment after the end of the pandemic and comparing the results was designed. Results were analyzed through Student t-tests and a between-group MANOVA using SPSS.

## Experiment

The experiment was designed in such a way as to use authentic questionnaires on the sense of security, examples of which were given earlier in the article. This is in line with the authors' intention to try to show that simplified inference methods, various effects, or biases have an impact on the respondents' answers to the questions asked in the sense of security surveys. The experiment examines the influence of the framing effect in the formulation of the question, including the use of positive (statements) and negative (denial) expressions as one of the forms of framing, and the availability heuristic on answering security questions.

The experiment runs according to the following scenario:

The first group of respondents answers the questions:

**Table 1. The First Question with the Intro**

Sometimes people wonder if they will become a victim of crime in the future, or whether they will be seriously harmed or otherwise injured. How do you estimate the probability that in the near future:						
	very unlikely	rather unlikely	neither unlikely, nor likely	rather likely	very likely	I don't know
vulgarly accosted	1	2	3	4	5	7
Beaten	1	2	3	4	5	7
robbed	1	2	3	4	5	7
injured in a car accident	1	2	3	4	5	7
subject to effective medical assistance in the event of illness or accident	1	2	3	4	5	7

The second group of respondents answers the question:

**Table 2. The First Question without the Intro**

How do you estimate the probability that in the near future:						
	very unlikely	rather unlikely	neither unlikely, nor likely	rather likely	very likely	I don't know
vulgarly accosted	1	2	3	4	5	7
Beaten	1	2	3	4	5	7
robbed	1	2	3	4	5	7
injured in a car accident	1	2	3	4	5	7
subject to effective medical assistance in the event of illness or accident	1	2	3	4	5	7

The statement: “Sometimes people wonder if they will become a victim of a crime in the future, or otherwise be seriously harmed or injured.” may cause a frame effect, therefore in two groups the respondents answer the same

question, preceded or not preceded by an introductory sentence.

The first and second groups of respondents answer the question:

**Table 3. The Second Question-Media Content**

Do you meet with content related to events in the media and in the public sphere?					
	rarely	rather rarely	I do not have an opinion	rather often	often
vulgarly accosted in a public place					
beating					
robbery					
car accident with injuries					
failure to provide assistance in the event of illness or accident					

This question was introduced to investigate the effect of the availability heuristic on the answers given in the previous question.

The first group of respondents answers the question:

**Table 4. The Third Question-a Positive Expression.**

To what extent do you think that Poland is a safe country? Please answer with a percentage from 0 % to 100 %.

The second group of respondents answers the question:

**Table 5. The Third Question-a Negative Expression.**

To what extent do you think Poland is a dangerous country? Please answer with a percentage from 0 % to 100 %.

The question examines the framing effect for the second time in the experiment. Equivalence has been made of phrases that are almost identical except for the adjectives “safe” and “dangerous”.

The circumstances of the COVID-19 pandemic are treated in the experiment as an additional advantage of the study. It is possible to re-test in one or two years after the epidemic has been eradicated. It may be interesting to compare the results and try to infer from them how the pandemic influenced the feeling of fear of crime. One of the cases assessed by the respondents in the first question (covered by effective medical care in the event of illness or accident) was introduced in the event of a pandemic (it was not included in the original InSec questionnaire, to which the first question directly refers).

## Results

### General measures of sense of security

Three general measures related to the sense of security were calculated.

(1) A cumulative indicator of sense of security (mean response to the five statements presented in Tables 1 and 2, respectively). The statement regarding effective

medical assistance was recoded so that higher values indicate less sense of security.

(2) A cumulative declaration of meeting with media content related to the five criminal events (Table 3) Values in the two above measures could range from 1 (very unlikely) to 5 (very likely), responses stating ‘I don’t know’ were excluded case-wise.

(3) A general measure of security based on the question ‘To what extent do you think that Poland is a safe/dangerous country?’, recoded so that higher values indicate higher safety. Values could range from 0 to 100%.

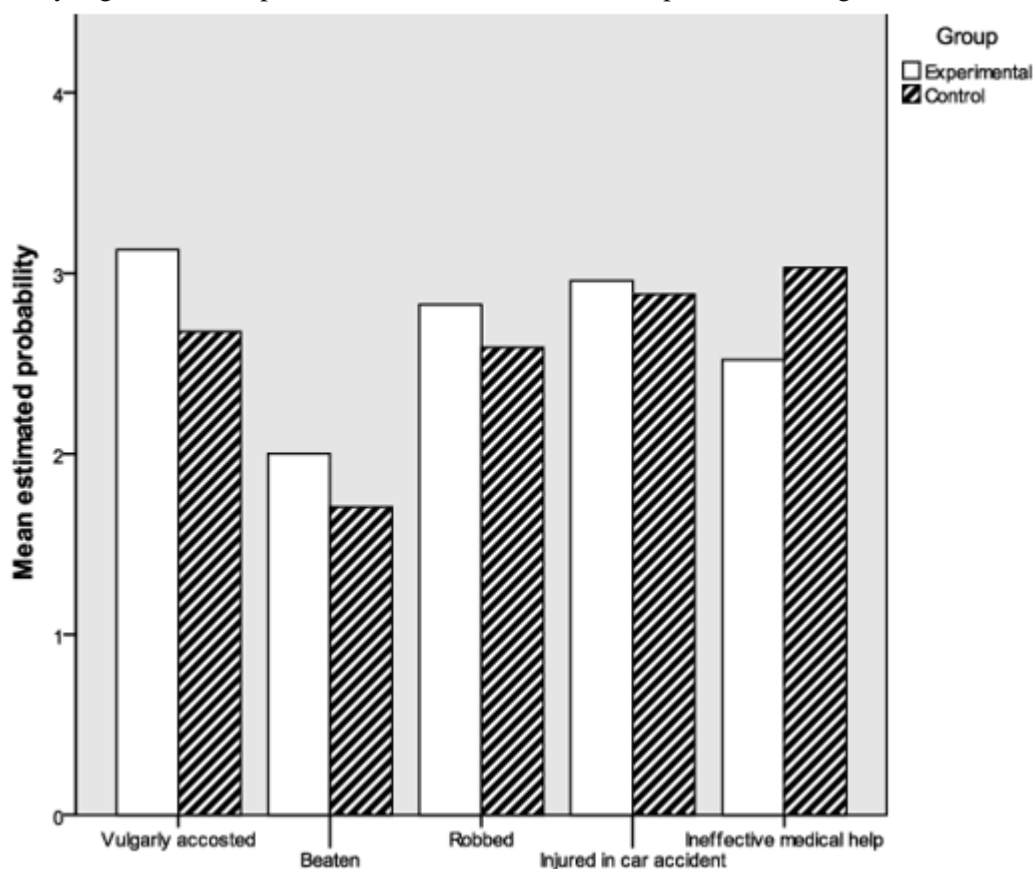
Hypotheses regarding the three above measures were tested using independent sample two-tailed Student t-tests, assuming a standard significance level of  $\alpha = .05$ . It turned out that no significant differences were observed between the experimental and control groups for the cumulative indicator of sense of security ( $M = 2.77$ ,  $SD = .58$  vs.  $M = 2.58$ ,  $SD = .55$ ,  $t(75) = 1.473$ ,  $p = .145$ ) nor the declaration of meeting with media content ( $M = 2.98$ ,  $SD = .83$  vs.  $M = 3.00$ ,  $SD = .94$ ,  $t(76) = .059$ ,  $p = .953$ ). There were, however, significant differences in the general measure of security ( $M = 63.7\%$ ,  $SD = 18.06\%$

for 'safe country' framing vs.  $M = 53.9\%$ ,  $SD = 20.67\%$  for 'dangerous country' framing;  $t(76) = 2.22$ ,  $p = .029$ ).

Between-group effects for particular types of criminal events

Declared probabilities of being a victim of particular criminal events presented in Tables 1 and 2 (vulgarly accosted, beaten, robbed, injured in car accident, subject to effective medical assistance) were compared between groups using MANOVA. It turned out that the estimate of being vulgarly accosted was significantly higher in the experimental condition

( $M = 3.24$ ,  $SD = 1.23$ ) than in the control condition ( $M = 2.60$ ,  $SD = 1.06$ ;  $F(1,72) = 5.70$ ,  $p = .02$ ), and the same was true for being beaten ( $M = 2.09$ ,  $SD = .93$  vs.  $M = 1.66$ ,  $SD = .58$ ;  $F(1,73) = 5.97$ ,  $p = .017$ ). Differences in the estimate of not receiving medical help were nearing significance, but not significant ( $M = 2.58$ ,  $SD = .99$  vs.  $M = 3.05$ ,  $SD = 1.04$ ,  $F(1,69) = 3.716$ ,  $p = .058$ ), and there were no significant differences for robbery and car accident ( $p = .228$  and  $p = .744$ , respectively). Results are presented in Figure 1.



**Figure 1. Between-group Comparisons for Particular Types of Criminal Events**

## Correlation analyses

Pearson  $r$  correlation analyses indicated that there was a significant positive correlation between the cumulative indicator of sense of security and the cumulative declaration of meeting with media content ( $r = .308$ ,  $p = .006$ ). Further analyses showed that this correlation was only present in the control group ( $r = .456$ ,  $p = .002$ ) and not in the experimental group ( $r = .107$ ,  $p = .541$ ). When considering individual types of criminal events, these correlations between probability and media presence were only significant for Vulgarly accosted ( $r = .230$ ,  $p = .048$ ) and Injured in car accident ( $r = .291$ ,  $p = .018$ ). There were no significant correlations for Beaten ( $r = .114$ ,  $p = .330$ ), Robbed ( $r = .182$ ,  $p = .129$ ) and Ineffective medical assistance ( $r = .155$ ,  $p = .198$ ). There was also a slight negative correlation between the general measure of security ('Is Poland a safe country') and the cumulative indicator of sense of security ( $r = -.341$ ,  $p = .045$ ), but this was only true for the experimental group, we did not observe a significant correlation between 'Is

Poland a dangerous country' and the cumulative indicator of sense of security in the control group ( $r = -.111$ ,  $p = .482$ ).

## Discussion

The hypothesis put forward in the experiment concerned the confirmation or denial that the presence of phrases inducing the availability heuristics and the framing effect in the survey questions affects the respondents' assessment of fear of crime. The confirmation of the hypothesis would lead to the claim of another serious doubt about the current way of conducting crime fear research, other than those discussed at the beginning of the article. Such a doubt should probably be underpinned by studies conducted on a larger number of participants and a wider spectrum of heuristics, however, confirming the hypothesis in the currently discussed experiment could be a good introduction to expressing such uncertainty. According to the authors, the research hypothesis was confirmed in the experiment.

The first question asked about the probability of being vulgarly harassed, beaten, robbed, injured in a car accident, receiving effective medical treatment in the event of an illness or accident. This question was asked in the experimental group after a one-sentence intro to stimulate the availability heuristics: “Sometimes people wonder if they will become a victim of a crime in the future or otherwise be seriously harmed or injured”, while in the control group, the question itself was asked without the intro. In the case of “vulgarly accosted” and “beaten”, the probability was estimated to be higher in the experimental group, where respondents were exposed to the availability heuristics. It is possible that the intro caused you to recall examples, remembering events that contributed to the higher probability. In the other two cases: “robbed” and “injured in a car accident”, there was no such effect. There was also no such effect in the question about illness or accident (we will return to this category later in the discussion), although it is likely that it would be revealed with a larger research sample.

It can be concluded that this disproportion in the responses and higher respect for the category of “vulgarly accosted” (for example, the fearful image of aggression of a single person or group of people on the street, inside public transport, at the intersection of demonstrations presenting mutually contradictory views) and “beaten” (and hypothetically also for “subject to effective medical assistance in the event of illness or accident”) concerns acts that directly threaten health and life, after all, “injured in a car accident” (only injured, without the need for hospitalization, which is included in the last category in the question) and “robbed” does not pose such a threat.

The higher estimate of the probability of “being vulgarly accosted” and “being beaten” cannot be fully explained by the second question, in which the question was asked how often the respondent had contact with media content regarding the five types of events mentioned in the first and second questions. Only about vulgar accusation and injury in a car accident, the frequency of the content (second question) is correlated with the assessment of the probability of these events (first question). Therefore, it cannot be said that the prevalence of content in the media was the only factor that influenced the cognitive availability that was behind the estimation of probability in the first question: this could be the case for vulgar accusation, but not for beating.

The question about the presence of media content (second question) was important because, in the case of the control group, in which the first question did not include an “intro”, there was a correlation between the assessment of the frequency of media content on a given topic (second question) and the assessment of the probability of the event (first question). So the awareness of the presence of a given content in the media was for the control group the moment that triggered cognitive availability, influencing the estimation of the occurrence of events in the first question. In the experimental group, cognitive availability was triggered by the intro of the first question, not the results of the second

question, and therefore there was no such correlation between the second and the first question in this group. In the future, a question may be asked that names other causes of cognitive availability, in addition to the media presence of the event.

All these interacting elements that induce the availability heuristics and the framing effect, that is, specific phrases or sequences or combinations of questions where one can influence the answers of the other, should be taken into account in the construction of crime fear surveys. If they cannot be eliminated, at least their influence on the result should be investigated. State services, including the police, base their work on indicators of fear of crime in the society, e.g. by focusing their efforts on phenomena and crimes that are perceived as particularly dangerous or burdensome for residents and withdrawing the involvement of the police in areas in which citizens do not report problems. Therefore, it is worth making every effort to ensure that these tests are as appropriate as possible.

An interesting case in the first question is “subject to effective medical assistance in the event of illness or accident”, which in the question about the presence of media content (second question) replies: “failure to assist in the event of an illness or accident”. As already mentioned in the experiment scenario, this type of event was not present in the original version of the survey on which the experiment was based, i.e. the 2002 InSec Kraków survey. It was decided to introduce additional events in connection with the pandemic situation. In general, it should be noted that the pandemic situation could exacerbate the anxiety in society and affect all responses in the survey. Therefore, it could be possible to draw some cognitive benefits by conducting the same experiment after the pandemic is over, which is the intention of the authors.

As for the content itself, “subject to effective medical assistance in the event of illness or accident”, the authors wanted to capture the media-wide fear that in the event of a sudden illness or accident, due to the heavy workload of hospitals in Poland related to diagnosis and treating patients suffering from COVID-19, respondents will not be provided with effective medical assistance. The media then published information about ambulances that circulated with patients from hospital to hospital, not finding a free bed. However, the context of this question (other questions about situations of concern, e.g. crime) meant that the respondents could answer the “negative” dimension of the question, assessing the situation in which they have an accident or suffer from an illness, e.g. COVID-19, and not directly responding to its “positive” dimension, that is, about the probability that medical assistance will be provided to them. In the case of repeating this experiment after a pandemic, this element of the scenario should be described in more detail to be able to capture the two “dimensions” of the question.

The most compelling confirmation of the hypothesis is the answers to the two versions of the third question. The question in the experimental group was: “To what extent do



you think Poland is a safe country”, and in the control group: “To what extent do you think Poland is a dangerous country”. Poland was recognized as a safe country by 63.72% of respondents, and as a dangerous country by 53.88%. This is a significant difference from the survey that arose due to the framing effect. When asking about safety, respondents are prompted to look for other examples of events and behaviors in their heads and to make a different percentage estimate than when asking about the danger. This conclusion may be questionable if you realize that crime fear research carried out by major research centers contains a similar framing. This is an example of the already mentioned, famous phrase from the beginning of crime fear research: “How safe do you feel walking alone in your neighborhood after dark?”, still in use today. A similar issue arises in the most important study of fear of crime in Poland, the Centre for Public Opinion Research (CBOS), the results of which are often quoted in the press, referring to the answer to this most important question: “Do you think Poland is a safe country to live in?”. Now it turns out that it has wording that produces a framing effect.

The conclusion about the framing effect caused by the use of the word “safe” is crucial, because there is an understandable desire to ask respondents directly about their sense of security, how safe they feel, or how safe they consider a neighborhood or country. The knowledge about the sense of security is socially desirable and it is easier to disseminate information regarding such and such percentage determination of the level of security. If one tries to say the same indirectly, using a questioning strategy devoid of framing-effect phrases,

and therefore in practice deprived of the words' safety, safe and derivative, then for the benefit of reliability, it would deprive the results of such polls of interest to the general public.

In the case of the experimental group and the question about Poland as a safe country, a negative correlation appeared between the answer to this question and the index of the probability of participation in the events mentioned in the first and second questions, that is: the more Poland was assessed as a safe country, the lower the estimated probability of criminal events. There was no inverse correlation in the control group. However, it can be assumed that either the assessment of the events as unlikely resulted in the conclusion that the respondents considered Poland a safer country, or vice versa (the order of questions in the survey changed randomly). The framing effect and the availability heuristics worked here. Such an effect may occur each time when several questions are asked consecutively on the same topic, which does not mean that when constructing survey questions, one is generally aware of it.

## Conclusions

Research on the impact of heuristics on the results of crime fears surveys should be continued because even a simple experiment shows that heuristics have a lot of importance in them, and so far no one has paid attention to it. The next stage should be to conduct research in an attempt to eliminate the heuristic effect from questions about fear of crime, i.e. to formulate an alternative set of survey questions about citizens' sense of security.

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