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Safety and Security: The Valences of Values

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Safety of healthcare is one of the most important values of patients. Public safety and security are important aspects to all, as demonstrated by the 2011 disaster in Japan. This comment describing 5 valences of safety and security may contribute to the necessary discussion about human values. These valences are related to system theory, intentionality, locus of control, situation andpersonality, and modeling capability. It is also suggested that different values such as safety/security, utility/benefit, and justice/equity may be structured by similar valences.

KEYWORDS Safety, security, value, valences

It was almost 20 years ago when one of us (F. P.) was working as medical oncologist and was treating cancer patients with chemotherapy. He was concerned about a fair balance of burden and benefit of the treatments offered to the patients. *Burden* means what the treated cancer patients had to accept, and *benefit* means what these patients get back as the result of the treatments. The burden of chemotherapy implies serious impairments of the health-related quality of life in the patient, such as hair loss, nausea, vomiting, hospitalization, desperation, hopelessness, and—in some cases—even treatment-related death. The expected benefit can be expressed in two dimensions:extension of life expectancy and/or improvement of health-related quality of life.

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The concern about unbalanced values was inflamed by a conference at Reisensburg Castle (Porzsolt, 1993; Porzsolt & MacDonald, 1993; Porzsolt & Tannock, 1993), when it became evident that the young discipline of health economy discussed mainly monetary costs and consequences of healthcare but did only marginally address the important aspects of intangible cost, that is, the loss in quality of life and the added risks of dying from treatment (Ingbar & Miner, 1980; Maynard, 1981; NN, 1981; Praiss, 1980). This economist's perspective was different from the patients' perspective, which was summarized as "Clinical Economics" (Porzsolt, 1994, 1995; Porzsolt, Kaplan, & CLINECS, 2006; Porzsolt, Williams, & Kaplan, 2003).

Financial constraints in almost any healthcare system triggered considerable attention to the value of healthcare. Almost innumerable publications compile a large volume of literature on different views and perspectives of healthcare value, benefit, utility, and other terms that cannot be understood unless the underlying concepts are explained (Nayer, 2009; Peasgood, Ward, & Brazier, 2010; Porter, 2008; Shavit, Leshno, Goldberger, Shmueli, & Hoffman, 2007). Value reflects the actual satisfaction one is experiencing from a desired outcome (e.g., a treatment). In contrast, by the concept of valence it is assumed that a person at any given point of time prefers a certain outcome to another. Thus, valence refers to anticipated satisfaction. As concerns motivation, it is important to distinguish between valence and value. If a disparity occurs between the anticipated and actual satisfaction from an outcome, a reward's motivational value may decrease. An individual may believe that money cannot buy happiness. Consequently, the motivational values of financial incentives may quickly fade away (Nissle & Bschor, 2002).

In this comment, we hypothesize that there are five valences of a value like safety. Second, we assume there are common aspects, respectively common valences between different societal values such as safety, benefit, and justice.

FIVE VALENCES OF SAFETY AND SECURITY

Struggling with the determinants of healthcare value, we started to discuss safety as an important but not really accepted value of healthcare. Safety in healthcare has different valences. To start the discussion about valences of values, we propose five possible valences of safety and security.

System Theory

The first valence is derived from system theory. Safety/security and risks are related topics but belong to different systems. Safety/security is located on a subjective and individual level closely linked to psychological systems. They may be expressed as social protest movement to protect parts of the

environment from destruction (rainforest, whales) or to emphasize the perceived harassment of health (genetically modified food, nuclear energy).

Risk can be measured and can be expressed in probabilities. Safety and security cannot be measured in contrast with perceived safety and security. Using psychometric instruments the dimensions that increase or decrease the perception of safety and security can be identified. It can also be quantified how safe/secure or unsafe/insecure somebody feels. We identified the dimensions of perceived safety and quantified safety in five different populations:(a) members of a self-help group after breast cancer (Rochau, 2009), (b) readers of a drug information leaflet (Gampert, 2010), (c) school children knowing of rampages (Popp, 2009), (d)elderly people from five cities in Germany (Knie, 2011), and (e) workers of a coal mine at Spitzbergen/Norway (Vangberg, 2008).

Intentionality

The second valence, the intentionality is related to someone's intention to increase a risk. *Security* is used to address the protection from directed risks and is distinguished from *safety*, which is used to address the protection from random risks. Examples of randomly affected safety are drug safety, safety belts in vehicles, and the wisdom safety first. Examples for security that is related to directed risks are private security services, security guards that protect politicians or public structures such as the homeland security.

Locus of Control

The third valence is related to locus of control, that is, the extent to which individuals believe that they can control events that affect them. Examples from road traffic or health behavior illustrate the risk of making inappropriate decisions. Car drivers can always avoid speeding and everybody can refrain from drinking alcohol while driving. External hazards such as accidents caused by primed drivers cannot always be controlled (Luhmann, 1993). This third valence describes the social role. An individual may be a producer and/or consumer of safety/security. In healthcare, producers are doctors or persons who have the responsibility to provide the necessary safety within their area (e.g. in a hospital) or to provide security at an airport, whereas consumers can be patients in a safe healthcare system or flight passengers in a secure airport.

Situation and Personality

The fourth valence is related to the situation and personality. Safety and security are influenced by states, that is, by situations and by traits such as persistent factors related to personality.

Modeling Capacity

The fifth valence describes the modeling capability. For application of this valence, it is important to accept that safety and security can be decreased and increased, but cannot be measured. Only the risks influencing safety and security can be measured by describing probabilities. One can also measure the perceived safety or perceived security using psychometric measures but not directly safety or security.

RESTRICTING THE VALENCES TO SECURITY AND SAFETY?

The discussion with colleagues from different disciplines had a considerable influence on our concept. As medical scientists, we were primarily concerned about healthcare benefit. This discussion clearly demonstrates that different professions are educated in different ways, consider different values, use different terms to describe identical contents, and set different priorities. However, this discussion also suggested conceptual similarities, although we seemingly discussed completely different things. We, the medicals, as producers of medical safety were discussing mainly benefit and utility, psychologists focused quality of life, the philosophers were concerned about equity and justice, and the engineers discussed risks of technical failures and of human error. Nevertheless, value was a common denominator. We all were discussing values and values obviously have something in common: they cannot be measured directly. We may be measuring the factors that influence these values as well as the individual perceptions of these values but not the values per se. These similarities suggested looking closer to possible communities of these values. As depicted in Table 1, obviously there exist several communities in values even if these are derived from rather different societal areas. The values of safety and security, of utility and benefit, and of justice and equity can be characterized by five valences, in system theory, intentionality, locus of control, situation and personality, and modeling capability.

DISCUSSION

The core interest of clinical economics, a new specialty of medicine that has been in development for almost the past 20 years, is related to the priority of patient's healthcare values to the society's values (Porzsolt, Weiss, Hege-Scheuing, & Fangerau, 2010). This is the most important of four differences between clinical economics and health economy. This modified understanding of clinical medicine may have some effect on other societal fields. The

TABLE 1 Common Valences of Different Values

Valence	Explanation	Safety–Security General value	Utility–Benefit Economic value	Justice—equity Ethical value
System theory	Measurable system	Risks & perceptions	Utility	Risks & perceptions
	Not measurable system	Safety, security	Benefit	Justice, equity
Intentionality	Directed actions	Harassment of security	Fraud	Crime
(to harm)	Not directed, random effects	Harassment of safety	Misfortune	Misfortune
Locus of control/	Own decisions/producers	Own decisions/producer	Own decisions/producer	Own decisions/producer
societal role	Decisions of others/consumers	Decisions of others/consumer	Decisions of others/consumer	Decisions of others/consumer
Situation &	State (related to situation)	State (related to situation)	State (related to situation)	State (related to situation)
personality	Trait (related to personality)	Trait (related to personality)	Trait (related to personality)	Trait (related to personality)
Modeling	Increasing effects	Risks & perceptions	Gains & losses perceptions	Risks & perceptions
capability	Decreasing effects	Risks & perceptions	Risks & perceptions	Risks & perceptions

academic reflections about values lead to the consideration about valences of values.

Safety is a topic in many studies on quality of life, but it is rather understood as risk factor or hazard (Holden et al., 2011; Shen et al., 2010; Wallace & Thipphawong, 2010) than as discrete and essential dimension of health-related quality of life. Even studies that cover many quality of life dimensions such as physiological factors, gender aspects, health symptoms, general health perception, and overall quality of life do not include the perception of safety (Ulvik, Nygård, Hanestad, Wentzel-Larsen, & Wahl, 2008).

The new concept about valences of values may trigger the discussion on a topic that has not yet been addressed systematically. As indicated by the example of safety, the systematic approach may be useful to solve downstream questions. The most important message we may derive from this discussion is the awareness of safety and security as one of our most important values. The disaster in Japan induced a lively discussion in Germany about safety and security. Political parties lost and gained votes and seats in parliaments and changed their programs. It can be predicted that the decided changes in energy politics will increase the cost of energy and the price for energy will definitely influence our economies. The stronger these changes will be requested and the faster our politicians will realize these changes, the higher will be the economic burden. This is all driven not by a change of risks in a country such as Germany but by the perception of safety. The perception of safety largely depends on the type and content of information which is disseminated. Therefore, we expect that understanding and discussing the concepts of safety and security will be major societal challenge in the next decade.

REFERENCES

Gampert, L. (2010). *Entwicklung und validierung eines psychometrischen messinstrumentes zur Messung der "gefühlten sicherheit" von patienten nach dem lesen einer arzneimittelgebrauchsinformation* [*Development and validity of a psychometric instrument for assessment of "perceived safety" in patients reading a drug information leaflet*]. Dr. Hum. biol. thesis, University of Ulm, Ulm, Germany.

Holden, R. J., Scanlon, M. C., Patel, N. R., Kaushal, R., Escoto, K. H., Brown, R. L., ... Karsh, B. T. (2011). A human factors framework and study of the effect of nursing workload on patient safety and employee quality of working life. *Qual Saf Health Care*, *20*, 15–24.

Ingbar, M. L., & Miner, J. C. (1981). Teaching cost containment and health economics in U.S. medical schools. *Journal of Medical Education*, *56*, 851–853.

Knie, A. (2011). *"Gefühlte sicherheit bei älteren menschen" entwicklung und validierung eines fragebogens zur messung der gefühlten sicherheit bei älteren menschen* [*Perceived safety in elderly people. Development and validity of*

a questionnaire for assessment of perceived safety in the elderly]. Doctoral dissertation, University of Ulm, Ulm, Germany.

Luhmann, N. (1993). *Soziologie des risikos* [Risk: Asociological theory]. New York, NY: de Gruyter.

Maynard, A. (1981). Graduate training in health economics at the University of York. *Program Notes Assoc Univ Programs Health Adm.*, *97*, 14–17.

Nayer, C. (2009). The value of dividends in health: A call to align stakeholders. *Clin Ther.*, *31*, 2689–2696.

Nissle, S., & Bschor, T. (2002). Winning the jackpot and depression: Money cannot buy happiness. *International Journal of Psychiatry in Clinical Practice*, *6*, 183–186.

NN. (1981). International perspectives in health economics: A selection from the Leiden conference. *Soc Sci Med Med Econ*, *15*, 53–122.

Peasgood, T., Ward, S. E., & Brazier, J. (2010). Health-state utility values in breast cancer. *Expert Rev Pharmacoecon Outcomes Res.*, *10*, 553–566.

Popp, R. (2009). *Entwicklung eines messinstruments zur erfassung der "gefühlten sicherheit" bei schülerinnen und schülern an realschulen in baden-württemberg* [*Development of an instrument for assessment of "perceived safety" in students of a junior high school in the state of Baden-Württemberg, Germany*]. Dr. Hum. biol. thesis. University of Ulm, Ulm, Germany.

Porter, M. E. (2008). Value-based health care delivery. *Ann Surg.*, *248*, 503–509.

Porzsolt, F. (1993). Goals of palliative cancer therapy: Scope of the problem. *Cancer Treatment Reviews*, *19*(Suppl. A), 3–14.

Porzsolt, F. (1994). Klinische ökonomik—eine forderung der gesellschaft an die ärzte [Clinical Economics—a demand of society from medical doctors]. *Münch. med. Wschr.*, *136*, 221–225.

Porzsolt, F. (1995). Klinische ökonomik und gesundheitsökonomie. Eine nützliche synthese [Clinical Economics and Health Economy. A useful synthesis]. In H. Günther & G. Ehninger (Eds.), *Individuelle therapieentscheidungen bei "unbegrenzten möglichkeiten." 7. Dresdner hämatologisch-onkololgisches gespräch* [*Individualized treatment decisions "unlimited." 7th Dredennematology-oncology discussion rounds*] (pp. 34–50). Dobersdorf, Germany: Pechstein Verlag.

Porzsolt, F., Kaplan, R. M., & Clinical Economics (CLINECS). (2006). Strategy and tactics to provide evidence of the usefulness of health care services from the patient's perspective (value for patients). In F. Porzsolt & R. M. Kaplan (Eds.), *Optimizing health—Improving the value of healthcare delivery* (pp. 1–9). New York, NY: Springer.

Porzsolt, F., & MacDonald, N. (1993). Palliation in cancer patients. Meeting report. *Journal of Cancer Research and Clinical Oncology*, *119*, 504–505.

Porzsolt, F., & Tannock, I. (1993). Goals of palliative cancer therapy. *Journal of Clinical Oncology*, *11*, 378–381.

Porzsolt, F., Weiss, M., Hege-Scheuing, G., & Fangerau, H. (2010). Klinische ökonomik—ein plädoyer für die ergänzung der medizinischen lehre und spezialisierung [Clinical Economics—a plea to supplement medical teaching and specialty training]. *Dtsch Med Wschr*, *135*, 2257–2262.

Porzsolt, F., Williams, A. R., & Kaplan, R. M. (2003). *Klinische ökonomik. Effektivität und effizienz von gesundheitsleistungen* [*Clinical Economics. Effectiveness and*

efficiency of health care services]. Landsberg/Lech, Germany: Ecomed Verlagsgesellschaft.

Praiss, I. (1980). The challenge of health economics to medical education. *Isr J Med Sci.*, *16*, 547–551.

Rochau, U. (2009). *Gefühlte sicherheit in selbsthilfegruppen nach brustkrebs* [*Perceived safety in self help groups following breast cancer*]. Master's thesis, University of Ulm, Ulm, Germany.

Shavit, O., Leshno, M., Goldberger, A., Shmueli, A., & Hoffman, A. (2007). It's time to choose the study design: Net benefit analysis of alternative study designs to acquire information for evaluation of health technologies. *Pharmacoeconomics*, *25*, 903–911.

Shen, C. L., Chyu, M. C., Pence, B. C., Yeh, J. K., Zhang, Y., Felton, C. K., … Wang, J. S. (2010). Green tea polyphenols supplementation and Tai Chi exercise for postmenopausal osteopenic women: Safety and quality of life report. *BMC Complement Altern Med*, *10*, 76.

Ulvik, B., Nygård, O., Hanestad, B. R., Wentzel-Larsen, T., & Wahl, A. K. (2008). Associations between disease severity, coping and dimensions of health-related quality of life in patients admitted for elective coronary angiography—A cross sectional study. *Health Qual Life Outcomes*, *6*, 38.

Vangberg, H. C. B. (2008). *Perceived safety in mining: A development of the Vangberg-Eisemann Perceived Safety Scale (VEPSS)*. Master's thesis, University of Tromsø, Tromsø, Norway.

Wallace, M., & Thipphawong, J. (2010). Open-label study on the long-term efficacy, safety, and impact on quality of life of OROS hydromorphone ER in patients with chronic low back pain. *Pain Med*, *11*, 1477–1188.