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Commentary/Position Paper

Psychologically informed health care

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Abstract

The term "psychologically informed health care" refers to the comprehensive integration of psychological principles into health care. Psychologically informed health care has the potential to lead to a transformation of care, resulting in truly transdisciplinary care. To facilitate its future development, we discuss key characteristics of this approach. These include the direct mode (psychologists assessing and treating patients themselves) and indirect mode (psychologists working through other health care providers) of integrating psychological principles into healthcare; the range of health domains targeted using this approach; transdisciplinary care, transcending traditional disciplinary boundaries; and the positioning of care. We describe a framework for transdisciplinary care, which we refer to as the Framework for Catalytic Collaboration. This framework comprises six dimensions: setting, disciplines, patients/clients, mode of psychological care, primary components of care, and primary targets of care. We also provide four brief illustrations of psychologically informed health care. Finally, we discuss future directions, including the need for professional recognition of the indirect mode, financing of the indirect mode, cross-disciplinary training and trans-disciplinary research.

Lay summary

The term "psychologically informed health care" refers to the use of the theories and techniques of psychology in health care settings. By integrating psychological and other care, a new approach emerges that is of great value to patients. Psychologically informed health care has the potential to change care for the better. Psychologists may assess and treat patients themselves (the direct approach) in close collaboration with other health care providers. Alternatively, psychologists may work through other health care providers, supporting them in the application of psychological principles to healthcare (the indirect approach). To encourage future development, we discuss key characteristics of this approach, provide a framework for care that cuts across disciplines, present four brief practical examples, and finally, we discuss future directions.

Keywords Psychology, Health care, Integration, Transdisciplinary care, Framework

Implications

Practice: For psychologically informed practice to be successful, cross-disciplinary training of both psychologists and other health care providers is urgently needed.
Policy: Professional organizations of psychologists need to recognize the crucial importance of the indirect mode of integrating psychological principles into health care.
Research: Transdisciplinary research is needed to further develop psychologically informed health care.

INTRODUCTION

The term "psychologically informed health care" refers to the comprehensive integration of psychological principles into health care. Psychologists may provide psychological care themselves, in a direct mode, in close collaboration and coordination with other disciplines, or they may work through other health disciplines, in an indirect mode. Psychologically informed health care may target a range of health domains (e.g., daily activities), not only mental health, and may result in truly transdisciplinary care; that is, care that

transcends traditional disciplinary boundaries to create a new approach [1].

Collaborative Care and similar models have advocated the integration of psychological knowledge and techniques into health care [2, 3]. Core elements of Collaborative Care include team-driven, population-focused, measurement-guided, and evidence-based [4]. Research has demonstrated the beneficial effects of this approach (e.g., [5]). Recently, the Comprehensive Healthcare Integration Framework describes the process of how to transform a health care organization into one delivering integrated care [6]. We add to this literature by elaborating on the content of psychologically informed health care: we provide an in-depth description of integrated care, focusing on content rather than a more complex model of care.

Integration of psychological principles has been previously described for care provided by specific disciplines such as physiotherapists (physical therapists), nurses, physicians, or pharmacists [7–9], the care provided by a specific department or ward, such as an acute mental health ward [10], and the care for a specific group such as a people living with a congenital heart condition [11] or pediatric populations [12]. These were "locally grown" initiatives, which were developed independently of each other. However, initiatives of this type may hold lessons that could enhance the development of the overall approach. With the ultimate aim of facilitating the future growth and development of this approach, we (i) discuss key characteristics of psychologically informed health care, (ii) provide a framework to support the future development of this approach, and (iii) discuss future directions.

KEY CHARACTERISTICS

Integration of psychological principles into health care

Psychological principles can be integrated into health care in two possible modes: the direct and the indirect. In the *direct mode*, psychologists themselves apply psychological techniques to assess and treat patients' health problems, in close coordination with care provided by other health care providers. An example is cognitive behavioral therapy to reduce stress and improve cardiac outcomes in patients with coronary heart disease [13]. Collaboration and coordination with other disciplines ensures that psychological issues are not assessed and treated in isolation, but tightly integrated with the patient's somatic problems. In the *indirect mode*, psychologists work through other health disciplines whose primary training is not psychology (e.g., physicians, nurses, physiotherapists, dieticians, or pharmacists), instead of or in addition to directly treating patients themselves. In the indirect mode, psychologists commit to integrating psychological principles into care provided by other health disciplines, and support other health care providers in delivering care in a psychologically informed way. Examples are behavioral consultations with cardiologists to address anxiety in patients who have experienced implantable cardioverter defibrillator shocks [14], psychological counseling of oncologists on how to deal with emotional concerns in patients with cancer [15], or psychological training of physiotherapists in order to assess psychological risk factors in patients with pain and to achieve a sustained improvement in patients' physical activity [16, 17].

The direct mode is the more traditional approach: in this mode psychologists assess and treat their patients' health problems, just as a physician or nurse might do. Recent years have seen the emergence of an indirect approach (see examples below). In this mode, the psychologist's contribution is less visible but no less important: this approach has a wide reach and could potentially lead to the widespread adoption of psychological principles in health care. In a third mode, psychologists provide consultation services, such as leadership development or team development [18]. In this mode psychologists contribute to the development of the organization, in general as well as more specifically with regard to the integration of psychological principles into health care. We will not elaborate on this mode as the present paper focuses on the content rather than on the organization of health care.

Targeting a range of health domains

Traditional consultation-liaison psychology/psychiatry focuses on comorbid mental disorders in patients with somatic disease [19–21]. Consultation-liaison psychologists and psychiatrists function in the direct mode (providing consultations to patients) and indirect mode (liaising with other health care providers). In both modes, their primary focus is on mental health issues (e.g., depression), while remaining fully cognizant of the interaction between mental and somatic processes. In contrast, psychologically informed health care may target a range of health domains, for example, physical activity or the patient's social environment, and the integration of psychological principles can have a beneficial effect on a wider range of health domains beyond just mental health.

A number of health domains have been defined by the World Health Organization [22], and drawing on a proposal to more explicitly articulate psychological processes in this classification [23], the following health domains can be distinguished: disorder or disease; somatic and mental (i.e., cognitive, emotional, and motivational) functions and structures; activities; participation; social and environmental factors; and personal factors (see Box 1). Psychologically informed health care can be applied in any of these health domains, and psychological principles can span the entire spectrum of illness, health, and medical care.

Transdisciplinary care

Integration of psychological principles into health care is not a one-way street, however. Psychology and other health disciplines interact, resulting in transdisciplinary care that transcends traditional disciplinary boundaries to create a new approach [1]. This is illustrated in the following example. In patients with knee osteoarthritis, cardiac comorbidity may limit the application of traditional exercise therapy [24] because patients with these joint conditions may avoid exercise due to concerns about a cardiac event [25]. Indeed, an exercise-related cardiac event is a potential risk in these patients. This implies that exposure therapy cannot be applied in the usual way (that is, exposure to exercise without a cardiac event occurring—the traditional psychological approach to treatment of fear). Instead, the risk of an exercise-related cardiac event needs to be controlled through adaptation of the exercise plan [26]. In this scenario physiotherapy will consist of adapted exercise therapy combined with counseling and a gradually increasing exposure to exercise. Following this approach, both exercise therapy and the psychological

Box 1. Health domains.

- Disease or disorder
- Somatic and mental functions and structures
  - Physiological and mental (i.e. cognitive, emotional, and motivational) functions of body systems and mind
  - Anatomical parts of the body such as organs, limbs and their components
- Activities
  - The execution of a task or action by an individual
- Participation
  - Involvement in a life situation
  - Environmental factors
  - Physical, social and attitudinal environment in which people live and conduct their lives
- Personal factors
  - Personality, global values, life goals, demographics and early life experiences

Derived from [22] and [23].

approach were modified, resulting in truly transdisciplinary care [27].

Positioning of care

In the direct mode, psychologists may act as a member of a psychology department or practice, or they can act as a member of a multidisciplinary team [28]. Usually, the physician or other health care provider refers the patient to the psychologist. In the indirect mode, psychologists contribute through the transfer of their expertise to other health care providers. This can take various forms, such as education, consulting, supervision, or mentoring. The positioning of these psychological services can vary, with psychologists operating via a psychology department or a company, or as members of a multidisciplinary team. It has been suggested that participation in a multidisciplinary team affords the most influence, as this position allows psychologists to influence team thinking and care planning [29, 30].

FRAMEWORK FOR CATALYTIC COLLABORATION

We propose a framework for the further development of psychologically informed health care, which we refer to as the *Framework for Catalytic Collaboration*. This framework was derived from the key characteristics mentioned above. It describes dimensions that should be considered when developing psychologically informed health care in a specific sector, and as such scientists and practitioners may find it helpful when developing psychologically informed health care. The framework has six dimensions and is illustrated in Fig. 1.

(A) The setting in which care is provided, for example, outpatient or inpatient clinic, primary care, or the community.
(B) The disciplines involved in delivering care, for example, physician, nurse, physical therapist, occupational therapist, dietician, pharmacist, psychologist, or psychiatrist.
(C) The category of patients/clients involved, for example, a diagnostic or age category, people living with a congenital heart condition, or pediatric populations.
(D) The mode of psychological care which can be the direct mode, provided via a psychological department or practice or by a multidisciplinary team, or the indirect mode, in terms of education, consulting, or mentoring provided to other health disciplines.
(E) Primary components of care involve *psychological components*, *other disciplines' components*, and *transdisciplinary aspects of care*. Within *psychological components*, a distinction is made between (a) assessment, for example, questionnaires on distress or symptoms, wearables and monitors to assess physiological functions and behavior, or diagnostic interviews; and (b) treatment, for example, mental health care focusing on cognitions and emotions, behavior change techniques, meaning-based interventions, or interventions in the social or environmental background. *Other disciplines' components* concerns care provided by other disciplines that integrates psychological care, for example, medical diagnostic procedures, pharmacotherapy, surgery, exercise therapy, or dietary intervention. *Transdisciplinary aspects* refers to the interaction between psychology and other health disciplines, resulting in care that transcends traditional disciplinary boundaries.
(F) The primary targets or goals on which care is primarily focused. These goals are defined in terms of the health domains mentioned above (see Box 1).

BRIEF ILLUSTRATIONS

We provide several brief illustrations of the integration of psychological principles into health care. Although these applications were developed without use of the present framework, they clearly illustrate that psychologically informed health care can be applied across a range of health domains, that integration of psychological principles can assist care in transcending traditional disciplinary boundaries, and that psychologists can operate in the direct or indirect mode (see Table 1).

Management of emotions in patients with cancer

The current approach to the management of emotions in patients with cancer consists of screening for psychological distress and referring for psychosocial care if the patient scores above the cut off for distress [31]. As this approach may have little or no beneficial effect on psychological distress [32, 33], an alternative approach has been developed in which clinicians (physicians, nurses) provide emotional support and identify patients in need of professional mental health care (case finding) [15]. A qualitative study showed that some clinicians are indeed able to manage patients' emotions using this approach [34]. These clinicians allowed patients time to adjust, while monitoring patients' psychological well-being, especially if patients exhibit specific risk factors ("watchful waiting"). Risk and protective factors for emotional problems included personal, social, and disease- and treatment-related factors. Referral for professional mental health care was considered when specific indicators of emotional problems were noted, such as emotions with a negative impact on a patient's daily life or treatment [34]. As it cannot be assumed that all clinicians are able to adequately manage patient emotions in this way, psychologists could provide additional training

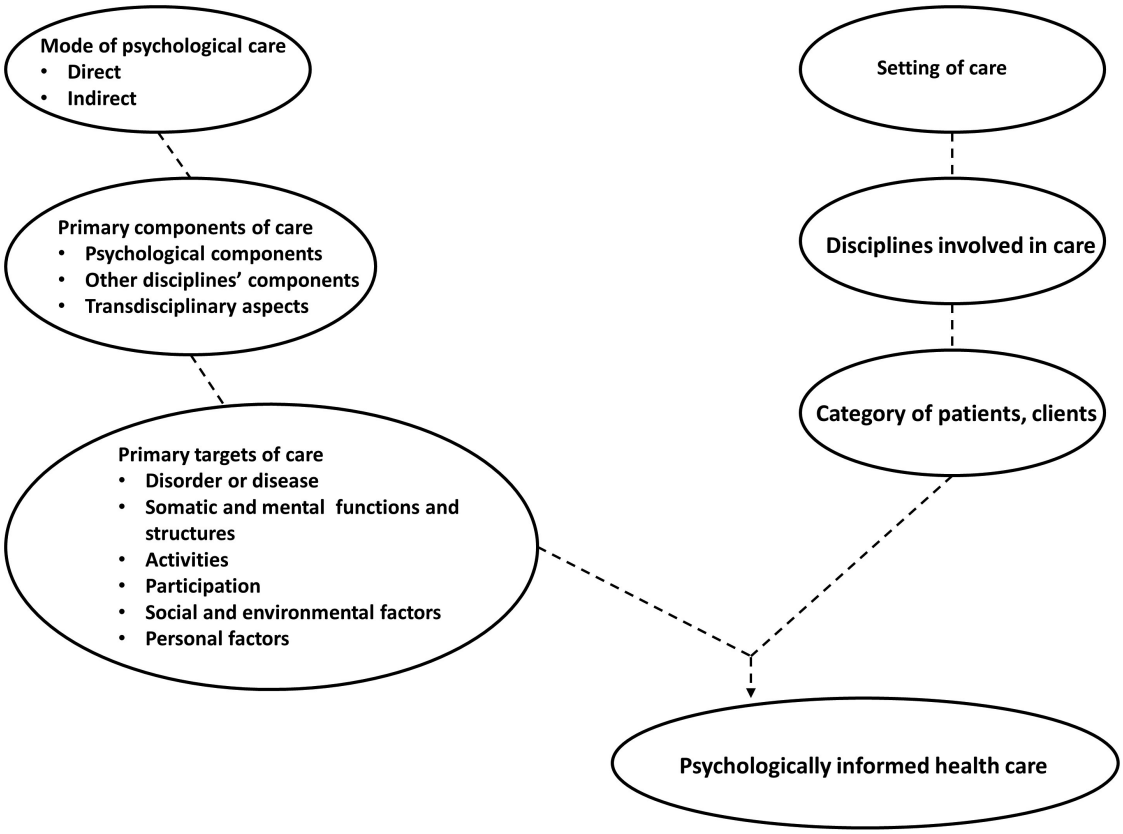

Figure 1. | Framework for catalytic collaboration.

to help improve clinician's performance [15, 34]. Additional training could focus on psychological and psychiatric knowledge on and techniques for managing emotions and emotional disorders, communication techniques, and empathy.

This example illustrates how psychologists can contribute to healthcare via both the indirect and direct mode: in the indirect mode, they provide training to clinicians; in the direct mode, they treat patients with mental health problems. The example also highlights transdisciplinary care: the traditional mono-disciplinary approach (that is, screening and a referral to a psychologist) is replaced by psychological care provided by clinicians (medical oncologists and nurses), who collaborate with psychologists to manage emotions and emotional problems of patients with cancer. Further research is needed to evaluate the effectiveness of this approach.

Management of atrial fibrillation

Atrial fibrillation (AF) is the most common cardiac arrhythmia, caused by asynchronous conduction from the atria and the ventricles of the heart. The initiation of AF begets further AF, and often results in anatomical changes in the size, pressures, and function of the atria [35]. AF is also associated with a five-fold increase in stroke [36]. The typical patient presentation is highly variable and can include symptoms (e.g., palpitations, fatigue, lightheadedness, and poor exercise tolerance), or be asymptomatic. Numerous new technologies have been launched to detect AF including wearables, monitors, and smart phone applications. Still, patients frequently remain uncertain about their condition, its treatment importance and its options.

Patients often engage in a heightened attention to all cardiac sensations or symptoms in order to detect AF. Anxiety and depressive symptoms are common (28–38% of AF patients) [37], and AF patients commonly report fear of exercise, fear of triggers of AF, fear of AF recurrence, or fear of death. Psychological distress may contribute to symptom severity and may prompt additional medical utilization [38]. Cardiac clinics rarely have consultation services available to address these psychosocial issues.

Successful management of AF also includes addressing behavioral components such as body weight, diabetes control, hypertension, sleep disorders, physical inactivity, excessive exercise, excessive alcohol use, and caffeine intake [39–41]. Fully addressing these behavioral components far outstrips the average clinical cardiology setting. As a result, patient education is the core modality to address behaviors and likely only results in marginal changes to behaviors.

Multidisciplinary care for AF has been advocated [28] and implemented at East Carolina University, North Carolina [42]. Clinical health psychologists provide direct patient care and they are involved in real time consultation to cardiologists (the indirect mode). Clinical consultation requests for psychology are triggered by the detection of patient psychological stress or the need for behavioral change, but also in response to key clinical cardiology events such as the implantation of a pacemaker, the experience of a stroke, or difficulties in patient decision making. Some of the psychological consultations lead to ongoing psychotherapeutic care with the team, whereas others result in more tailored patient education and recommendations.

Table 1 | Four illustrations of the integration of psychological principles into health care

	Management of emotions in patients with cancer	Management of atrial fibrillation	Physiotherapy curriculum	Ward-based mental health intervention
A. Setting	Department of medical oncology	Department of cardiology	Primary, secondary, and tertiary health care	Acute mental health wards
B. Disciplines	Medical oncology, nursing, and psychology	Cardiology, health psychology, nurse practitioner, and cardiac electrophysiology	Physiotherapy, psychology, general practice, other relevant medical disciplines, rehabilitation	Psychology, nursing
C. Patients, clients	Patients with cancer	Patients with atrial fibrillation	All physiotherapy patients	People with acute mental health problems
D. Mode of psychological care	Direct as well as indirect mode	Direct as well as indirect mode	Direct as well as indirect mode	Direct as well as indirect mode
E. Primary components of care	Watchful waiting and emotional support provided by clinicians, and mental health care provided by psychologists Transdisciplinary aspect: Incorporation of psychological care into oncological care	Various mental health and behavioral assessments and interventions, cardiac assessments and treatments Transdisciplinary aspect: Integrated mental, behavioral, and cardiac care	Goal setting, self-monitoring, functional analysis, basic skills training, applied skills training, generalization, maintenance, and relapse prevention Transdisciplinary aspect: Integrated physiotherapy and behavioral medicine approach in primary, secondary, and tertiary health care	Various psychological assessments and treatments Transdisciplinary aspect: Psychological care integrated into acute mental health care
F. Primary targets of care	Mental health	Mental, behavioral, and cardiac health	Disability, cognitions, and behaviors	Mental health

The multidisciplinary team is involved in cross-training of cardiologists and psychologists and in interdisciplinary research. Openness to learning the full array of cardiovascular medicine and psychological practices allows cardiology fellows and psychology trainees to cross-publish in cardiology and psychology journals. The intent is to advance both psychological science and patient care in cardiology.

Physiotherapy curriculum

The undergraduate program in physiotherapy at Uppsala University, Sweden has adopted a curriculum that integrates physiotherapy and behavioral medicine [43]. It is based on seminal work on patients with chronic pain in primary care [44, 45]. Established physiotherapeutic principles were re-focused from a mainly biomedical problem-solving model to a behavioral medicine-goal attainment model. Students have since been trained to apply the model in all patient consultations, either in a short or fully developed format.

Changes have been made to both the structure and content of the curriculum. Instead of the traditional approach involving initial theoretical courses in anatomy and physiology, first semester courses are now arranged as follows: (i) health, behavior, and research methodology, (ii) learning, behavior analysis, and behavioral medicine, and (iii) physiology and anatomy. In this way, the stage is set for physiotherapy as a health promoting and psychologically informed academic subject and profession.

Using chronic pain as an example, behavioral goal identification and assessment starts by asking the patient to list and prioritize activities of daily living that are important to live a good life. Patients estimate how often prioritized activities occur during a typical week and rank activities according to level of difficulty. Based on a balance between importance, frequency and difficulty, target activities are selected and monitored. Physical and psychological assessments (including real-time monitoring) are carried out by the physiotherapist alone, or in collaboration with a psychologist. The results are used to develop functional behavior analyses of target behaviors, and to present a treatment plan based on contingencies between antecedents, behaviors, and consequences (ABC-contingencies). While validating the patient's experience and suffering, the emphasis is on learning new behaviors in order to attain goals related to important every-day life activities. Behavior change techniques are selected based on the continuously updated functional analyses, in relation to progress in basic skills training (e.g., strength and flexibility training) and applied skills training (e.g., playing with children). Graded activity or a graded exposure format is applied in cases where fear of movement impedes skills training. Generalization to new target behaviors or situations is part of the working model, as are strategies for maintenance of skills and relapse prevention.

Variants of this model have been developed and tested for whiplash-associated disorders [46], pediatric pain [47], occupational rehabilitation [48], physical activity, and eating behaviors in obstructive sleep apnea [49], and physical exercise during adjuvant cancer treatment [50].

Ward-based mental health intervention

People on acute mental health wards in the United Kingdom often do not have access to evidence-based psychological therapies for severe mental health problems. Treatment in these settings is dominated by the medical models and focuses

on medication and physical containment to reduce immediate risks to self and others [51]. To address this problem, a psychologically informed model of care called TULIPS (Talk, Understand and Listen for InPatient Settings) was developed [52]. TULIPS aims to increase patient access to therapies such as CBT provided via the direct mode, as well as access to care whereby psychologists work indirectly with other members of the team to create more psychologically informed care environments. The model was developed in a number of steps, including a literature review [53], a qualitative study [30], pilot studies [10], and an expert consensus conference [52].

TULIPS is a stepped model of care whereby patients receive one or more of three possible steps of care. The steps the patient receives are decided by the multidisciplinary ward team, considering the patient's and carers' wishes and needs at the time.

At Step 1, all patients have a psychological formulation developed by a clinical psychologist in conjunction with the patient or members of the ward team (which will include the person's named nurse). The formulation provides a framework for bringing together biological, societal, cultural, and psychological factors that might be responsible for the development and maintenance of problems and thus facilitates care planning.

At Step 2, all qualified nurses are trained and supervised by the clinical psychologist to deliver guided self-help material of psychological interventions targeting key problem areas for patients on acute mental health wards (e.g., anxiety management). These interventions are delivered in group or one-to-one formats.

At Step 3, patients who are felt to have needs that cannot be met at Step 2 and who want to engage in psychological therapy are offered up to 16 one-to-one therapy sessions with the psychologist. The likely focus of these sessions is on understanding the reasons for the current or repeated relapses and developing coping tools to address key factors triggering relapse.

Staff receive extensive training on how to apply the model. In addition to delivering the stepped model of care, the psychologist carries out weekly, 1-h group-based, reflective staff practice sessions whereby a group of staff come together to reflect on their current and future work with patients or other more general issues impacting on team dynamics.

The TULIPS intervention is currently being evaluated using a cluster randomized controlled trial comparing TULIPS to treatment as usual [54]. Anticipated benefits of the intervention are reductions in serious incidents on the ward, improved patient well-being and functioning, and reduced staff burnout.

FUTURE DIRECTIONS

The framework presented offers support in the further development of psychologically informed health care. It encourages future developers to consider a range of health domains as primary targets of care, to develop truly transdisciplinary care transcending traditional disciplinary boundaries, and to consider both the direct and the indirect mode when integrating psychological principles into health care.

For the successful development of psychologically informed health care, a number of key issues need to be addressed. *First*, the role and value of psychologists in the indirect mode in health care needs to be better recognized. While the direct mode is the more traditional role, providing visibility and recognition to psychologists who assess and treat patients themselves, the indirect mode is less visible but perhaps even more important. Professional organizations of psychologists need to recognize the crucial importance of the indirect mode and to encourage psychologists to work in this mode: through the indirect mode, psychology can have a major impact on health care and patients' health. *Second*, finding a stable form of financing for the indirect mode is a key priority, because health systems tend to reimburse only the direct mode. Integrated medical-behavioral healthcare has been estimated to result in substantial savings on medical costs [55]. This is a compelling reason to reimburse the indirect mode in addition to the direct mode. *Third*, cross-disciplinary training is urgently needed. First of all this concerns psychologists, who should have a thorough understanding of the pathology, symptoms, impact on behavior, and medical treatment of the disease in which they are involved [28]. They should understand the clinical context in which they are functioning, they need to develop the specialized expertise required to function in a multidisciplinary team, and they must recognize their own value related to clinical care and to training of other health care providers [28]. Furthermore, they must learn to provide practical approaches to assessment and treatment that are well adapted to the clinical context in which their health care collaborators function [28]. Health care providers whose primary training is not psychology require training as well. Some may have developed a good understanding of the psychological problems of their patients and how to manage these problems (e.g., [34]). Others may need practical training to develop a basic understanding of psychological problems and skills to deal with these problems. *Fourth*, research is urgently needed to further develop psychologically informed health care [15, 42]. This applies in particular to the truly transdisciplinary aspects, such as the assessment and treatment of the mix of psychological and somatic symptoms in patients with a somatic disease.

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Compliance with Ethical Standards

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