Individual and Needs-Based: The Platform-Model for Personnel Allocation in Child and Adolescent Psychiatry and Psychotherapy

A Feasibility Study

Michael G. Kölch¹, Marianne Klein², Veronika Knebusch³, Arno Deister⁴, Gereon Heuft⁵, Dorothea Sauter⁶, and Peter Brückner-Bozetti³

¹ Dept. for Child and Adolescent Psychiatry, Neurology, Psychosomatics and Psychotherapy, Rostock

² Centre for Psychiatry, Klinikum Schloss Winnenden

³ Forum für Gesundheitswirtschaft gGmbH/e.V., Bremen

⁴ Centre for Psychosocial Medicine, Klinikum Itzehoe

⁵ Section for Psychosomatic Medicine and Psychotherapy, University Hospital Münster (UKM)

⁶ Centre for Psychiatry Südwürttemberg, University of Ulm

Abstract: *Objective:* An initiative by scientific societies of psychiatry, child and adolescent psychiatry, psychosomatic medicine, and further associations established the *Platform-Model* for the development of a needs-based system for adequate personnel allocation in psychiatric inpatient and day clinic units. We present the development of the instrument and a pilot study to identify feasibility and limitations. *Methods:* The basis of the study was a threefold methodological approach. Paradigmatic case vignettes adequately reflecting symptomatology and circumstances were described and validated, working profiles were generated and validated, and a matrix representing different needs-based dimensions was developed. Through reference date surveys, patients were assigned to needs-based clusters and Psych-PV categories. The required treatment effort under consideration of guidelines or expert consensus was estimated in several rounds of expert panels (Delphi method). *Results:* The pilot study proves the feasibility of the *Platform-Model*. Methodological findings as well as limitations of the model were identified in order to further develop the *Platform-Model*. *Conclusions:* The *Platform-Model* cannot serve as a tool to describe clinical pathways, but it appears to be an adequate and practical tool for assessment of the required staffing level based on patient needs independent of diagnosis and setting.

Keywords: psychiatric care, personnel allocation, health policy, child and adolescent psychiatry, platform-model

Individuell und bedarfsgerecht: Das Plattform-Modell für Personalbemessung in der Kinder- und Jugendpsychiatrie und Psychotherapie – eine Machbarkeitsstudie

Zusammenfassung: *Fragestellung:* Fachgesellschaften und -verbände der Psychiatrie, Kinder- und Jugendpsychiatrie und -psychotherapie und Psychosomatischen Medizin sowie weitere Verbände haben das Plattform-Modell für eine bedarfsgerechte und adäquate Personalbemessung in stationären psychiatrischen und psychosomatischen Einrichtungen und Tageskliniken entwickelt. Die vorliegende Machbarkeitsstudie sollte die Annahmen des Modells überprüfen und Limitationen identifizieren. *Methodik:* Es wurden paradigmatische Fallvignetten entwickelt und validiert, die Symptomkonstellationen und Umstände angemessen abbilden sollen. Zudem wurden neue Tätigkeitsprofile erstellt und validiert. Es wurde eine Bedarfsmatrix konzipiert (Bedarfscluster), die verschiedene Bedarfsdimensionen widerspiegelt. Durch Stichtagserhebungen wurden die Patienten den Clustern der Bedarfsmatrix und den Psych-PV-Kategorien zugeordnet. Der erforderliche Behandlungsaufwand wurde unter Berücksichtigung von Leitlinien oder Expertenkonsens in mehreren Runden von Experten (Delphi-Methode) geschätzt. *Ergebnisse:* Die Studie konnte die Machbarkeit des Plattform-Modells grundsätzlich bestätigen. Es wurden sowohl methodische Erkenntnisse als auch Limitationen des Modells identifiziert, die genutzt werden können, um das Plattform-Modell weiterzuentwickeln. *Schlussfolgerungen:* Das Plattform-Modell kann nicht zur Beschreibung klinischer Pfade dienen, aber es scheint ein adäquates und praktisches Werkzeug zur Beurteilung der erforderlichen Personalausstattung auf der Grundlage des Behandlungsbedarfs unabhängig von Diagnose und Setting zu sein.

Schlüsselwörter: Psychiatrische Versorgung, Personalbemessung, Kinder- und Jugendpsychiatrie, Plattform-Modell, Gesundheitspolitik

Introduction

Child and adolescent psychiatric inpatient treatment is characterized by a professional relationship, strong inclusion of family in the therapeutic and child- or youth-specific pedagogic milieu, which together results in extensive work and time. As defined in the UN Convention of the Rights of the Child, childhood is entitled to special care and assistance, which is especially true for children with psychiatric disorders (UN Commission on Human Rights, 1990).

The children treated in child and adolescent psychiatric institutions are especially vulnerable and have high care needs. Their families are often disadvantaged, and the majority receives support from the youth-welfare system (Beck, 2015). Therefore, qualified and sufficient staffing levels in child and adolescent psychiatric institutions are the premise for an adequate quality of care as well as a prerequisite to fulfilling children's rights.

In Germany the Psychiatry Personnel Act (Psych-PV) (Kunze et al., 2010) served as a baseline for budget negotiations with health insurance funds and defined personnel standards in both adult psychiatry and child and adolescent psychiatry. Psych-PV reflected the time occupational groups (e.g., psychiatrists, nursing staff) required for professional activities in the therapy of psychiatric patients in inpatient and day-clinic treatment. The required treatment time had been determined by measuring the real time required for professional activities. Compared to psychiatry, personnel standards for child and adolescent psychiatry were about 25% higher, reflecting the high need for care in children (Kunze et al., 2010). Psych-PV was developed more than 25 years ago and has lacked revision since. As a result, several developments of evidence-based therapeutic standards (e.g., psychotherapy), the increased amount of documentation and requirements due to additional or changed laws, e.g., patient's rights law or standards for informed consent or shared decision making, were never adopted in Psych-PV (Godemann et al., 2015; Klimke et al., 2015; Löhr et al., 2015). Additionally, changes in the patient structure (e.g., more patients with needs for multimodal support by health care system and youth welfare system) and changes in society (e.g., more patients with divorced parents or patchwork families) were not recognized (APK, 2017; Beck, 2015; Koch-Stoecker & Kölch, 2020). Moreover, deescalative measures to avoid force and coercion toward patients became more important, including more talking-based interventions and 1:1 intensive care (Nienaber et al., 2018). Psych-PV was stopped by law on January 1, 2019. Instead, the Federal Joint Committee (Gemeinsamer Bundesausschuss, G-BA) was supposed to develop new binding minimum standards for personnel allocation in psychiatric and psychosomatic inpatient institutions according to § 136a (2)

SGB V (volume V of the German Social Security Code). Within this new framework, standards for personnel allocation had to be redefined (G-BA, 2019). Personnel minimum requirements were introduced on January 1, 2020. They define the minimum level of staff, below which patients may suffer harm. These minimal standards are not applicable as a tool for allocating personnel (G-BA, 2019). Therefore, a tool that ensures adequate staffing levels is urgently required. A new tool must consider the global severity of cases (Löhr et al., 2015) in order to estimate time values according to needs of patients by their individual need for care and therapy, which is mostly insufficiently defined by psychiatric diagnosis alone as well as by psychosocial factors, such as the family situation, comorbidities, or low levels of participation. An adequate assessment to identify the different needs was not available in Germany.

The need for adequate number of staff in child and adolescent psychiatry (and in psychiatry in general) has been widely discussed in Germany for many years. Several developments over the last years led to a reduction of or inadequate increase in staff (Hauth et al., 2019). The absence of normative personnel requirements might lead to market-based decisions which counteract sensible, adequate, patient- and quality-oriented treatment (Godemann et al., 2015). Several studies showed that there is a connection between staffing levels and conflicts or other negative health outcomes (Blume et al., 2019; Nienaber et al., 2018).

An initiative driven by the scientific societies of psychiatry (DGPPN), psychosomatic medicine (DGPM), and child and adolescent psychiatry (DGKJP) and further associations (e.g., BAG KJPP) established the *Plattform Personal* for the development of a system for adequate personnel allocation in psychiatric inpatient and day-clinic units. The *Plattform Personal* developed the *Plattform-Model* for a needs-based personnel allocation in psychiatric, child and adolescent psychiatric and psychosomatic institutions (Hauth et al., 2019). The *Plattform-Model* evaluates the time and staff needed to fulfil the requirements for guideline-based treatment. In a first step, the *Plattform-Model* was put to the test within the framework of a pilot study, which is presented in this article, showing the strengths and weaknesses of the *Plattform-Model* and implementations for future research in child and adolescent psychiatry.

The major objectives of the pilot and feasibility study were to

1. assess whether the clusters and descriptions of paradigmatic case vignettes are applicable and distinct and represent the whole spectrum of symptom constellations;
2. describe the implications for personnel requirements and needs in child and adolescent psychiatric institutions.

Further research questions were posed regarding the use of the paradigmatic case vignettes, namely, whether they are suitable for allocating patients to the needs-based clusters, whether these needs are adequately reflected by the case vignettes, and whether they report complex cases adequately. In addition, the aim was to evaluate the methods in order to design a future-oriented personnel assessment. Finally, it was important to assess whether the model is transferable to other psychosocial organizational structures and institutions and can be dynamically adapted to new requirements over time.

This article focuses on child and adolescent psychiatry, while two parallel publications present the results of the *Platform-Model* in adult psychiatry (Deister et al. 2020) and psychosomatic medicine (Cuntz et al., in press).

Methods

The study is based on paradigmatic case vignettes, working profiles, and a matrix representing different needs-based dimensions, which were developed in multidisciplinary and multiprofessional expert discussions prior to the study. Those were used in rounds of expert panels (Delphi-method) (Niederberger & Renn, 2018; Schulz & Renn, 2009) and reference date surveys.

First, paradigmatic case vignettes were generated in order to represent the various treatment constellations occurring in child and adolescent psychiatry. They were validated by expert interviews, and on basis of the feedback

two senior child and adolescent psychiatric experts edited and clarified the case vignettes. Second, working profiles for each occupational group (medical doctors/child and adolescent psychiatrists, psychologists/child and adolescent psychotherapists, specialized nurses/pedagogues, social workers, and special therapists such as ergo, speech, music, or art therapists) were listed and validated throughout the study. They directly include patient-related activities and indirectly include patient-related activities and setting-related activities. Throughout the pilot study, the working profiles were continuously improved and validated (Hauth et al., 2019). In order to assign the different cases to the representing treatment constellations, three dimensions and eight clusters were developed which are organized around the different needs: psychiatric-psychotherapeutic, psychosocial, and somatic. These are subdivided into regular need and extended need as visualized in Figure 1. Cluster 1 describes a regular need in all three dimensions, Clusters 2, 3, and 4 extended need in respectively one dimension; Clusters 5, 6, and 7 show extended need in two dimensions and Cluster 8 extended need in all dimensions.

Regular need includes all diagnostic, therapeutic, nursing, pedagogic, and other activities generally required for psychiatric inpatient or day-clinic treatment of children and adolescents. Extended need is linked to a high frequency of contacts and therapy, short-term interventions by various professional groups, instruction and support, increased care expenditure, increased expenditure for interprofessional coordination, communication, and for individual care requirements. The needs-based clusters are

	Dimension 1	Dimension 2	Dimension 3	
Regular need	Psychiatric regular need (PSY)	Somatic regular need (SOM)	Psychosocial regular need (SOZ)	Cluster 1
Extended need in one dimension	Psychiatric regular need (PSY)	Somatic extended need (SOM)	Psychosocial regular need (SOZ)	Cluster 2
	Psychiatric regular need (PSY)	Somatic regular need (SOM)	Psychosocial extended need (SOZ)	Cluster 3
	Psychiatric extended need (PSY)	Somatic regular need (SOM)	Psychosocial regular need (SOZ)	Cluster 4
Extended need in two dimensions	Psychiatric regular need (PSY)	Somatic extended need (SOM)	Psychosocial extended need (SOZ)	Cluster 5
	Psychiatric extended need (PSY)	Somatic extended need (SOM)	Psychosocial regular need (SOZ)	Cluster 6
	Psychiatric extended need (PSY)	Somatic regular need (SOM)	Psychosocial extended need (SOZ)	Cluster 7
Extended need in all dimensions	Psychiatric extended need (PSY)	Somatic extended need (SOM)	Psychosocial extended need (SOZ)	Cluster 8

☐ Regular need ☒ Extended need

Figure 1. Clusters of needs developed in the *Platform-Model*.

independent of diagnosis and setting and sufficient to fully represent the needs of patients, as shown in the Results. Altogether the paradigmatic case vignettes, the working profiles and the classification of cases were based on guidelines (especially S3 guidelines, e.g., eating disorders, ADHD, disorders of social behavior, depression) (DGKJP 2013, 2016; DGKJP et al., 2017; DGPM & DGKJP, 2018).

The pilot study was based on two empirical phases: reference data surveys and four different rounds of expert panels based on the Delphi method (Niederberger & Renn, 2018; Schulz & Renn, 2009).

The reference data surveys were carried out in three different institutions representing the child and adolescent psychiatric landscape in Germany (one child and adolescent psychiatric hospital, one department of child and adolescent psychiatry in a general hospital, one department for child and adolescent psychiatry at a University Medical Centre) with altogether 526 patients (inpatients and day-clinic patients). Between March and April 2019, patients were assigned to the categories “regular need” or “extended need” in all three dimensions (psychiatric-psychotherapeutic, psychosocial, and somatic treatment needs) of the *Platform-Model*, while also being assigned simultaneously to the old Psych-PV categories (KJ1: child psychiatric regular and intensive care, KJ2: adolescent psychiatric regular care, KJ3: adolescent psychiatric intensive care, KJ4: reha-

bilitation of children and adolescents, KJ5: long-term care of seriously and multiply psychiatric disordered children and adolescent, KJ6: parent-child care, KJ7: day-clinic care). Assignments were made three times within 9-day intervals (Monday, Wednesday, Friday). The examiners (in general a senior physician or a director of nursing/educational care) received training before carrying out the survey, using the paradigmatic case vignettes. The aim was to identify whether the clusters represent all patients and their needs.

In the course of four rounds of expert panels (Delphi method) (Niederberger & Renn, 2018; Schulz & Renn, 2009) between April and December 2019, around 120 experts, about 40 of whom were child and adolescent psychiatric experts, estimated the time values for professional activities (Figure 2). First, the expert panels were carried out by four multiprofessional teams of experts. The professions comprised child and adolescent psychiatrists, child and adolescent psychotherapists, specialised nurses, specialised pedagogues, social workers and special therapists (movement, ergo, speech, music, or art therapists). Inclusion criteria for the experts was at least 5 years of postdegree practical experience in child and adolescent psychiatry (inpatient or day clinic). The experts used the paradigmatic case vignettes (bottom-up approach) and working profiles for estimation of time need-

Figure 2. Four rounds of expert panels to estimate time values (Delphi-method).

ed to treat the clustered cases in an inpatient setting over a period of 7 days. In the second round of expert panels, teams assembled by profession reviewed the profession-specific estimated treatment time values of the individual work activities of the first round. They compared the tasks and time values across the eight clusters and adjusted the values if necessary. The basis of comparison was the first cluster (regular need in all dimensions). The third and fourth round of expert panels used a top-down approach and analyzed the values of the previous rounds in multidisciplinary teams. They checked the values in round three, considering aspects of division of labor, cooperation, and overlapping of tasks between the professional groups. If necessary, they adjusted the time values on basis of Cluster 1. Finally, in the fourth and last round, the treatment time values were compared with Psych-PV (based on the cluster mix and PsychPV mix of a ward with 10 patients determined by the reference date survey) and other empirical data (such as 1:1 care) in order to determine the finalized time values per cluster and profession.

Results

The results presented in this publication focus on Clusters 1–4.

Paradigmatic Case Vignettes

Paradigmatic case vignettes were developed as a common instrument for describing patients in clinical practice. They reflect the sociobiographical information and the psychiatric, somatic, and psychosocial constellation of

symptoms of fictional patients. The description must be so clear that experts can easily assign patients according to their regular or extended need in the three dimensions used in the model. Between three and five paradigmatic case vignettes reflecting typical symptomatology in the various age groups of child and adolescent psychiatric patients were developed for each cluster of need by a team of senior child and adolescent psychiatric experts. They were validated by 30 external experts, with the result of selective clarification of the wording of the paradigmatic case vignettes. The final case vignettes are brief, clear, and comprehensible, so they are feasible for the training of future users of the Platform Model. Examples of Cluster 4 case vignettes can be seen in Figure 3.

Recursive Development of the Working Profiles

The working profiles catalogue acknowledges new requirements to working profiles based on guidelines and expert consensus.

First, the work activities were defined as patient-related or as setting-related. The multiprofessional expert panels generated lists of all working tasks in everyday clinical work for each profession. The lists were compared to the working profiles of PsychPV (generated 30 years ago), which showed that the present working tasks are more extensive and precise. The patient-related activities were divided into those with direct patient contact (e.g., psychotherapy session, physical examination, accompanying and supporting the child in everyday activities), and those

Boy, age 15 yrs., manic symptoms over the past three weeks. Psychopathology is characterized by inflated self-esteem, megalomania, racing and at times disintegrated thoughts, persistently increased activity, logorrhea, decreased need for sleep (nights spent awake several times in a row), increased libido. Mood is elevated, sometimes very cheerful, sometimes very irritable to aggressive with unpredictable changes. His actions are uncritical and he therefore has no awareness of danger towards himself or others. Very high external monitoring up to individual care is required. Increased appetite, to date without having gained weight. Before illness school performance (10th grade, grammar school) was at high level; past three 3 weeks no school attendance possible due to psychiatric state. He lives together with his mother and his 18-year-old brother, parents are divorced, regular and positive contact with his father. The parents are in line in pedagogic matters.

Girl, age 14 yrs., emotionally unstable personality disorder of the borderline type. Psychopathology is characterized by non-suicidal self-injuring behavior, frequent suicide threats and various attempts (4 g paracetamol; attempted strangulation with towel tied to radiator). Psychiatry admission due to suicidal thoughts, which are constantly present and only fluctuate minimally in intensity over days. Patient states constant pressure to act with regard to suicidal tendencies and cannot promise to report suicidal thoughts. Mood fluctuates rapidly; treatment alliance changes constantly requiring frequent therapeutic contacts and constant supervision. Non-suicidal self-injuring behaviour daily, but superficial; wound care by disinfection is sufficient. Due to symptomatology, the girl lives in therapeutic youth care group.

Girl, age 10 yrs., obsessive-compulsive disorder. Psychopathology characterized by hours of compulsive washing and toilet rituals and obsessive dressing and undressing every day, which disables her to take part in social activities and school. If compulsion is interrupted, she becomes aggressive. Patient refuses medication so far. Before admission she blocked the family bathroom for hours, where she also left notepads on the washing machine in a certain order, thus combating her fear of forgetting something. Due to frequent washing, the hands are red and sore with cracked skin, no superinfection. Patient accepts treatment with ointment several times a day. Parents are both teachers, empathetic and caring towards their only child. Patient is unable to attend school due to compulsive behaviour, thus avoiding the feared contamination. Her high school performance up to now has saved her from losing track at school.

Boy, age 7 yrs., disorder with social anxiety of childhood. Since toddlerhood very shy and anxious. Avoided social contact to peers in kindergarten, only able to play in small groups with very familiar children. Hardly bonded or spoke to the kindergarten personnel over years. Symptomatology continued into school-age despite outpatient psychotherapy and curative education. Strong fears of the upcoming school enrolment; age-related patient needs close assistance and support in situations such as going to bed or waking up at night, in structuring the day and handling activities. Lives with parents and two siblings, middle class family without psychosocial stress. Mother also had anxiety in childhood, is still slightly anxious. Parents are worried that school enrolment will not be successful due to resistance of their son's social anxiety to treatment so far. Support by the youth welfare office has already been initiated.

Figure 3. Paradigmatic case-vignettes – Examples Cluster 4.

without patient contact but with relation to the specific patient (e.g., documentation, evaluation of diagnostic findings, debriefing session after crisis intervention). Throughout the expert panels it became evident that the time spent with indirectly patient-related activities can also vary due to the treatment needs of the patient, such as case conferences and case supervision. They were previously assigned to the setting-related activities (Hauth et al., 2019). The catalogue of activities was therefore revised in a recursive process with the experts (Röschlau, 1990). The working profiles now include the following sections: the directly and indirectly patient-related activities and the structural setting-related activities. They are designed around the activities occurring throughout the treatment process from admission to discharge.

Setting-related activities describe the conditions needed in order to ensure a safe, health-promoting, therapeutic milieu permitting diagnostics and therapeutic activities. This involves the constant availability of personnel for treatment and care and for other additional tasks such as the 1:1 intensive care for legally accommodated patients admitted by court order or children with somatic comorbidities. It also includes service interventions needed outside the working hours of the service staff, e.g., cleaning up after a child has been sick or clearing the table after meals at the weekend. Communicative, coordinative, administrative, and management tasks as well as quality and safety measures (e.g., mandatory training for fire or data protection) are also included in the setting. It is generally possible to expand the setting and institutions of care (such as home treatment or inpatient-equivalent treatment [StäB] and psychiatric outpatient clinics) in the further development of the Platform-Model (Hauth et al., 2019).

The directly and indirectly patient-related activities add up to about 85 % of the time share of activities estimated by the experts. In child and adolescent psychiatry, the categories of the working profiles are the same as in adult psychiatry except for the educational activities (Deister et al., 2020), whereas the single activities within the categories differ.

Reference Date Surveys – Distribution of the Clusters in Clinical Practice

The needs of the patients vary between the inpatient and day-clinic setting and between the child (0–13 years) inpatient group and the adolescent (14–17 years) inpatient group. The majority of patients are represented by Clusters 1 to 4 (regular or extended need in at the most one dimension) ranging between 82 % (child inpatients) and 94 % (adolescent inpatients).

The rate of patients with regular needs ranges between 41 % (child inpatients) and 69 % (day-clinic setting). The

day-clinic setting therefore shows the lowest rate of patients with an extended need in one or more dimensions (31 %), whereas the inpatient child psychiatry shows the highest rate (59 %) of extended need in one or more dimensions. Regarding the total average of the sample, 43 % of children and adolescents in the day-clinic and inpatient facilities have an extended need in one or more dimensions.

The second largest group of patients across the different settings and patient groups is represented by Cluster 4 (increased psychiatric need) ranging between 8 % (day-clinic setting) and 26 % (child inpatients). The third highest count is covered by Cluster 3 (increased psychosocial need) with 6 % in the day-clinic setting and around 12 % in the inpatient setting.

Impact of the Platform-Model on Time Values/Required Time Resources and Staffing

Several new activities in psychosocial care were introduced or became more relevant after the introduction of Psych-PV, such as promoting health, psychotherapy, and shared decision-making, which were recognized during the expert panels. Figure 4 shows the estimated time in minutes required for the different work activities in Cluster 1–4, which reflect the different needs across the various dimensions and are further elaborated in this section. The time values themselves can be further examined in a future development of the Platform-Model.

Across all clusters, it is evident that disorder-specific psychiatric therapy and psychotherapy has the highest estimated time values, followed by setting and then by nursing/educational presence, accompaniment, and support.

Regarding the total estimated minutes required for all work activities around a child and adolescent psychiatric patient per cluster, the lowest estimate is in Cluster 1 (2,835 minutes), which adequately reflects the regular needs in all dimensions and is therefore also used as a reference point. Cluster 1 therefore states the estimated time needed for the global treatment of a patient in an inpatient child and adolescent setting over 7 days. Extended psychosocial need (Cluster 3) enlarges the required working time by 400 minutes (14 %). Extended somatic need (Cluster 2) and, even more, extended psychiatric-psychotherapeutic need (Cluster 4) exceeds the time for regular need by 860 minutes (30 %) respectively 880 minutes (31 %). This pilot study cannot give definite time values, but it can show a trend in which direction the development might lead. Additionally, it can be used as a basis for future development of the study.

Figure 4. Estimated time values of work activities (in minutes per week, per patient), clusters 1–4.

The pilot study shows that in child and adolescent psychiatry around five additional full-time employees (FTE) would be needed on an average ward with ten patients reflecting the usual case mix/distribution of clusters in clinical practice based on Psych-PV Mapping. These FTE are distributed across occupational groups. Figure 5 illustrates the proportion of professions of staff additionally needed according to the *Platform-Model*. The results show an additional need for more staff in all professional groups, with the highest need in special groups (nursing educational staff, physicians, and psychotherapists) compared to former PsychPV (Kunze et al. 2010).

Discussion

The pilot study proved the general concept of the personnel allocation model. It showed that the paradigmatic case vignettes are both useful for training the examiners and as a basis for estimating work time values. They are adequate for assigning the patients to one of the eight clusters. The working profiles provide a detailed description for the professional groups showing two aspects: the working profiles in modern child and adolescent psychiatry overlap between the professions, which represents the working in multiprofessional and multidisciplinary teams. And, work within psychiatric hospitals can be divided in two sections: directly/indirectly patient-related activities and more structural setting-related activities. The data collected during the reference date surveys show that the model reflects the needs

of the patients regardless of diagnosis and setting. This underlines the advantages of the model, as the patient-centered approach describes the needs for the treatment regardless of the setting (inpatient, day-clinic). Such a needs-focused approach is a great chance for more patient-centered treatment planning.

A comparison of Psych-PV and the *Platform-Model* reveals various differences: While Psych-PV followed a simple categorization by age (children vs. adolescents), and setting characteristics like rehabilitative treatment or day clinic treatment, with seven categories for child and adolescent psychiatry (only four have broadly been used in clinical practice), the *Platform-Model* uses three needs-based dimensions (psychiatric-psychotherapeutic, psychosocial, somatic), eight treatment clusters for child and adolescent psychiatry, and has no limitations for the setting. The *Platform-Model* uses current job and working profiles and follows a dynamic approach, while Psych-PV was based on the therapy and working reality of the 1980s and followed a statistical approach (Hauth et al., 2019; Kunze et al., 2010).

There are several reasons for the additional need for staff, which is a result of the *Platform-Model* compared to the former personnel allocation model Psych-PV. There are increased requirements within the fields of activity in psychiatry, increased demands for information and participation of the patients and their caregivers, increased documentation and advanced trainings, etc. Directly related to psychiatric treatment, there is evidence for intensive psychotherapeutic interventions for most patients, which was not calculated in the former Psych-PV. There-

Figure 5. Differentiated personnel needed – Shares of professions of the additional personnel needed.

fore, the increased need for personnel found by the *Platform-Model* reflects the developments in psychiatric (inpatient) treatment over the past decades. With reflection on existing international and national treatment guidelines, it seems logical that the need for personnel has increased significantly compared to the state-of-the-art treatment of the 1990s. The differentiated increase for specific professions within the *Platform-Model* represents both the validity of the model as well as the complex duties and responsibilities of the professions within child and adolescent (inpatient) treatment: Nursing and educational staff has to support therapeutic interventions to ensure transmission of psychotherapy to the everyday life of patients (e.g., behavioral modification by behavioral plans, intensive pedagogic support for patients, evidence-based interventions for activation, etc.). Both child and adolescent psychiatrists as well as psychotherapists provide psychotherapeutic interventions in therapy. Intensive psychotherapeutic interventions are required for most inpatients, which to some extent explains the increase of FTE for these professions. Diagnostic assessments are much more differentiated than they were 20 years ago (e.g., the diagnosis of autism), which may be an additional explanation. And last but not least, especially for these professions the amount of documentation and collaboration with youth welfare system, schools, but also health insurances has increased over the past decades. Therefore, the increase in necessary FTE retrieved by the *Platform-Model* does not astonish. The comprehensible amount of additionally needed personnel is the strength of this model.

It is partly possible to use guidelines as a basis for structural criteria for staffing and hence for time estimates of interventions (Löhr et al., 2015). However, guidelines were not developed for this purpose, and most guidelines do not refer to specific settings of inpatient treatment. Further,

most patients in inpatient child and adolescent treatment show more than a single diagnosis of psychiatric disorders; they often have psychiatric comorbidities. Therefore, guidelines do not describe all interventions necessary for the treatment and care of mentally ill children and adolescents such as short interventions in nonsuicidal self-injuring behavior requiring intense nursing care (being with). Another problem that can occur using guidelines is a different interpretation of who is taking on which task (Löhr et al., 2015), which leads to an overlapping of working profiles and a multiple collection of time estimates for the same tasks in the first rounds of expert panels. This effect was corrected in the following expert panels and ought to be prevented in the future development of the study. The aspect that not only one profession provides interventions is one special character of inpatient treatment (multidisciplinary teams).

The *Platform-Model* can work not only in Germany for personnel allocation, as it abstractly describes the needs of patients for treatment components. Therefore, it can be adopted to other countries, and the time values needed for the components can be adjusted to national specific requirements. To our knowledge, it is the first patient-centered personnel allocation model for child and adolescent psychiatry tested in a feasibility study. The former Psych-PV was also tested in some departments after its development, but it did not have the strong patient-centered character as the *Platform-Model* has.

In Germany nowadays, a mandatory guideline published by the G-BA exists which defines minimal levels for personnel within psychiatric hospitals. These minimal levels are understood as the lowest number of personnel required to avert harm from patients. Compared to this, the *Platform-Model* could allow to explore the need for personnel allocation for adequate treatment according to modern standards in child and adolescent psychiatry.

Limitations

Since the estimated time values in the present study are based on expert consensus, they cannot be claimed to state *the* personnel requirement. However, valid ranges that are superior to the old Psych-PV can be defined, which can be used, for instance, in negotiation processes with insurance funds. While these time estimates focus on inpatient facilities, other treatment settings should be included in the future development of the model.

The following distortions or limitations systematically exist in the estimation of required needs:

- Uncertainties in the expert estimates (objectivity, reliability).

- According to a pilot and feasibility study, data are limited by number of ratings, number of cases etc.
- Negotiation interests can influence the values.
- Overlaps in activities between different occupational groups are possible despite cooperative, critical discussion based on the working profiles.
- Possibilities of optimization are not considered.
- In some professions, workload and stress tend to be underestimated; this is especially true for nurses (including the results of the first expert estimate).

When applying quantitative methods of empirical social research, these limitations should be taken into account when preparing a survey.

Next Steps for Further Development of the *Platform-Model*

The various limitations of this pilot study should be addressed in the further development of a personnel assessment tool for psychiatric and psychosomatic inpatient facilities for children and adolescents. The participation of patients and their families should be ensured in the further development of this tool. The way care is provided in the future and possible optimizations of processes also have to be taken into account.

In a first step, the personnel needed has to be quantified by validated expert consensus based on the guidelines. Furthermore, it would be helpful to compare values of the *Platform-Model* with data assessed in the PPP study, which wanted to assess time values in real clinical practice in psychiatric hospitals (see <https://gwt-ppp.de/index.php/ablauf-der-studie>). Unfortunately, this study is not yet published. In order to assess the personnel needed, the methodology has to be further improved by introducing more steps. In order to further understand the distribution of the clusters in current institutions, the reference date surveys should be carried out on several days with a complete assessment of the organization or/and a randomized sample of organizations. The first round of expert panels should take into consideration the time estimates for treatment based on case descriptions and working profiles (by multidisciplinary teams) from the pilot study and should be validated by further estimates. Additionally, a quantitative design should be introduced where time estimates are generated by experts who randomly receive different paradigmatic case vignettes. The experts should be also chosen randomly, while the institution might follow a structured sampling. Through a second round of expert panels, a qualitative

validation should take place. A comparative analytical evaluation of all results based on the validation of guidelines and expert consensus should be done. Therefore cross-validations, changes in structures and processes can take place.

In general, structures and processes should be taken into consideration: Effects of other or new kinds of care – day-clinic, inpatient-equivalent treatment – and a new design of care processes (including optimization, digitalisation) on staffing requirements.

Conclusion

Several aspects can be concluded from this pilot study. First of all, this method is unique and has not been tested for measuring personnel needs in psychiatric, child and adolescent psychiatric and psychosomatic institutions before. The paradigmatic case vignettes and working profiles were validated and can be now used as a basis for identifying needs and assessing the correlating clusters across the patients in a ward or institution. The reference date survey showed that the patients are well represented by the eight developed clusters, which are based on three dimensions of need (psychiatric-psychotherapeutic, psychosocial, and somatic need). By introducing four rounds of expert panels with different foci and a variation of the composition of the expert team, time estimates were identified for the tasks described in the working profiles. Therefore, personnel need as well as a comparison to the previous Psych-PV were recognized. The model serves to identify the required personnel regardless of diagnosis and setting. It is dynamic and therefore future-orientated. However, it can serve neither as a tool to describe clinical pathways nor as an accounting system but as a tool to assess the staff level required based on patient needs.

The final conclusion is that *the one and only* staff requirement does not exist. But certain needs for more staff across the occupational groups could be identified, a finding fit to serve for further discussion and investigation. Meanwhile, various limitations were identified regarding this method, which can be used for the future development of the *Platform-Model*. It is a great opportunity to introduce a guideline and expert consensus-based personnel allocation and therefore to close the gap identified by the Federal Joint Committee. It should bring all the different stakeholders to the table (patients, families, employees, management, purchaser, healthcare providers) in order to develop a needs-based and efficient tool leading to an improved work environment and provision of care in child and adolescent psychiatric treatment.

References

- APK. (2017). Versorgung psychisch kranker Kinder und Jugendlicher in Deutschland – Bestandsaufnahme und Bedarfsanalyse. Abschlussbericht verfasst von J.M. Fegert, M. Kölch, & U. Krüger, herausgegeben von der Aktion psychisch Kranke e.V., Bonn. Available at www.apk-ev.de/fileadmin/downloads/Abschlussbericht_Versorgung_psychisch_kranke_Kinder_u_Jugendliche.pdf
- Beck, N. (2015). Jugendhilfebedarf nach (teil-)stationärer kinder- und jugendpsychiatrischer Behandlung. Eine deskriptive Analyse. *Zeitschrift für Kinder- und Jugendpsychiatrie und Psychotherapie*, 43(6), 443–451.
- Blume, A., Snellgrove, B. & Steinert, T. (2019). Personalbesetzung und patientenbezogene Outcomes: Systematische Literaturübersicht zur internationalen Evidenz. *Der Nervenarzt*, 90(1), 40–44.
- Cuntz, U., Hochlehnert, A., Hauth, I., Kölch, M., Löhr, M. & Brückner-Bozetti, P. (in press). Behandlungscluster – Grundlage für die Personalbemessung in der psychosomatischen Medizin. *Zeitschrift für Psychosomatische Medizin und Psychotherapie*.
- Deister, A., Brückner-Bozetti, P., Heuft, G., Kölch, M., Klein, M., Löhr, M., Richert, A. & Hauth, I. (2020). Personalbemessung in der Psychiatrie und Psychotherapie. Ergebnisse einer Machbarkeitsstudie zum Plattform-Modell (Personnel assessment in psychiatry and psychotherapy: Results of a feasibility study on the Platform Model). *Der Nervenarzt*. <https://doi.org/10.1007/s00115-020-00995-w> (online ahead of print)
- Deutsche Gesellschaft für Kinder- und Jugendpsychiatrie, Psychosomatik und Psychotherapie e.V. (DGKJP). (2013). Behandlung von depressiven Störungen bei Kindern und Jugendlichen. Available at https://www.awmf.org/uploads/tx_szleitlinien/028-043L_S3_Depressive_St%C3%B6rungen_bei_Kindern_Jugendlichen_2013-07-abgelaufen.pdf retrieved on 26 June 2020]
- Deutsche Gesellschaft für Kinder- und Jugendpsychiatrie, Psychosomatik und Psychotherapie e.V. (DGKJP). (2016). Störungen des Sozialverhaltens: Empfehlungen zur Versorgung und Behandlung. Available at https://www.awmf.org/uploads/tx_szleitlinien/028-020L_S3_Störungen_des_Sozialverhaltens_2016-09_1.pdf [retrieved on 26 June 2020]
- Deutsche Gesellschaft für Kinder- und Jugendpsychiatrie, Psychosomatik und Psychotherapie e.V. (DGKJP), Deutsche Gesellschaft für Psychiatrie und Psychotherapie, Psychosomatik und Nervenheilkunde e.V. (DGPPN) & Deutsche Gesellschaft für Sozialpädiatrie und Jugendmedizin e.V. (DGSPJ). (2017). *Langfassung der interdisziplinären evidenz- und konsensbasierten (S3) Leitlinie „Aufmerksamkeitsdefizit-/Hyperaktivitätsstörung (ADHS) im Kindes-, Jugend- und Erwachsenenalter.“* Available at https://www.awmf.org/uploads/tx_szleitlinien/028-045L_S3_ADHS_2018-06.pdf [retrieved on 26 June 2020]
- Deutsche Gesellschaft für Psychosomatische Medizin und Ärztliche Psychotherapie e.V. (DGPM) & Deutsche Gesellschaft für Kinder- und Jugendpsychiatrie, Psychosomatik und Psychotherapie e.V. (DGKJP) (2018). S3-Leitlinie Diagnostik und Behandlung der Essstörungen. Available at https://www.awmf.org/uploads/tx_szleitlinien/051-026L_S3_Esstörung-Diagnostik-Therapie_2020-03.pdf [retrieved on 26 June 2020]
- Gemeinsamer Bundesausschuss (G-BA). (2019). Tragende Gründe zum Beschluss des Gemeinsamen Bundesausschusses über eine Personalausstattung Psychiatrie und Psychosomatik-Richtlinie: Erstfassung. Available at https://www.g-ba.de/downloads/40-268-6078/2019-09-19_PPP-RL_Erstfassung_TrG.pdf [retrieved on 27 May 2020]
- Godemann, F., Wolff-Menzler, C., Löhr, M., Nitschke, R., Salize, H.J., Seemüller, F., Laengle, G., Wolff, J. & Hauth, I. (2015). Berechnung der Personalbemessung bei einer Umsetzung von 100 % Psych-PV. Kann diese auf der Grundlage vorliegender Routinedaten erfolgen? *Der Nervenarzt*, 86(7), 845–851.
- Hauth, I., Brückner-Bozetti, P., Heuft, G., Kölch, M., Löhr, M., Richert, A. & Deister, A. (2019). Personalausstattung in stationären psychiatrischen Einrichtungen: Ein patientenorientiertes und leitliniengerechtes Konzept zur Personalbemessung. *Der Nervenarzt*, 90(3), 285–292.
- Klimke, A., Godemann, F., Hauth, I. & Deister, A. (2015). Strukturqualität in psychiatrischen und psycho-therapeutischen Kliniken. *Der Nervenarzt*, 86(5), 525–533.
- Koch-Stoecker, S. & Kölch, M. (2020). Versorgungsstrukturen und -bedarfe psychisch kranker Kinder, Jugendlicher und Erwachsener in. In von O. Razum & P. Kolip (Eds.), *Handbuch Gesundheitswissenschaften* (7th ed., pp. 833–875). Beltz.
- Kunze, H., Kaltenbach, L. & Kupfer, K. (2010). *Psychiatrie-Personalverordnung* (6th ed.). Kohlhammer.
- Löhr, M., Sauter, D., Nienaber, A., Heuft, G., Ahrens, R., Oppermann, G., Heinz, A. & Schulz, M. (2015). Personalressourcen für psychiatrische Einrichtungen. Bedarfsermittlung am Beispiel der Pflegefachberufe in Deutschland. *Der Nervenarzt*, 86(7), 857–865.
- Niederberger, M. & Renn, O. (2018). *Das Gruppendelphi-Verfahren*. Springer Fachmedien.
- Nienaber, A., Heinz, A., Rapp, M.A., Bermpohl, F., Schulz, M., Behrens, J. & Löhr, M. (2018). Einfluss der Personalbesetzung auf Konflikte auf psychiatrischen Stationen. *Der Nervenarzt*, 89(7), 821–827.
- Röschlau, M. (1990). *RKW-Handbuch Personalplanung*. Luchterhand.
- Schulz, M. & Renn, O. (2009). *Das Gruppendelphi*. Konzept und Fragebogenkonstruktion. VS Verlag für Sozialwissenschaften/GWW Fachverlage GmbH.
- UN Commission on Human Rights. (1990). Convention on the Rights of the Child. E/CN.4/RES/1990/74. Available at <https://www.ohchr.org/Documents/ProfessionalInterest/crc.pdf>

History

Manuscript submitted: 10.11.2002

Accepted after revision: 01.09.2020

Published online: 16.12.2020

Conflict of Interest

Michael Kölch and Marianne Klein are Medical Directors of Departments of Child and Adolescent Psychiatry. Gereon Heuft and Arno Deister are Medical Directors of Departments for Psychiatry or Psychosomatics. Michael Kölch is President of the German Society for Child and Adolescent Psychiatry. Marianne Klein is Vice-Chairman of the BAG KJPP. Veronika Knebusch is an employee and P. Brückner-Bozetti is Chairman of the Forum für Gesundheitswirtschaft gGmbH, which was involved as a research company in the development of the Platform-Model. Dorothea Sauter is President of the German Society for Mental Health Nursing.

Prof. Dr. Michael G. Kölch

Klinik für Psychiatrie, Neurologie, Psychosomatik und Psychotherapie im Kindes- und Jugendalter
Universitätsmedizin Rostock
Gehlsheimer Str. 20
18147 Rostock
Deutschland

michael.koelch@med.uni-rostock.de