Title: Patient participation in pro re nata medication in forensic psychiatric care: a nursing document analysis

Running title: Patient participation in PRN medication

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Conflict of interests

The first author has received personal fees from Niuvanniemi hospital, the University of Eastern Finland, and the University of Turku during the study.

Ethical statements

The study was reviewed and approved by the Committee on Research Ethics of the University of Eastern Finland and the hospital board. Written informed consent was obtained from the participants to access their nursing documents and to incorporate these into the research data. Patients were provided adequate time for decision-making.

Abstract

Introduction

Pro re nata (PRN) medication is unscheduled and used for acute physical and psychiatric symptoms. Previous studies have focused on the what and how of psychotropic PRN administration. Initiators of PRN events and occasions in which PRN was denied have rarely been studied. Thus, knowledge of patient participation in PRN is fragmented.

Aim

We aimed to describe and explain long-term psychiatric inpatients' participation in relation to planning and initiation of, as well as decisions and feedback on their PRN medication treatment.

Methods

We retrieved data from patients' (n = 67) nursing documentation in a Finnish forensic psychiatric hospital in 2018. Data were analysed using statistical methods.

Results

All patients were prescribed PRN, and they initiated half of the 8626 PRN events identified, in a one-year period. Non-pharmacological strategies were rarely (6%) documented, and most of them were initiated by staff (76%). Feedback on PRN was usually from a nurse's viewpoint (71%). Nurses' feedback was positive (80%) more often than patients' (50%).

Discussion

Patient participation needs to be recognized throughout the PRN process. Future research could continue to explore patient participation in planning and evaluating their PRN medication.

Implications for practice

Patients participate in PRN by requesting medication. Their participation can be developed by supporting patients to communicate their choice of non-pharmacological methods, take the initiative for medication when needed, and disclose their viewpoint on the effects of PRN.

Keywords: drug therapies, forensic, patient rights, long term care, user involvement

Accessible summary

What is known on the subject?

- As needed medication is commonly used for psychiatric inpatients' acute psychiatric and physical symptoms. Both patients and staff can initiate such medication.
- Earlier studies have focused on what and how as needed medication has been used for psychiatric reasons. Little is known about how patients participate in planning, administration, and evaluation of as needed medication and its alternatives. Nursing documentation provides an insight into these practices.

What the paper adds to existing knowledge?

- Long-term inpatients have an active role in initiating as needed medication. However, patients and staff may have divergent opinions on the need for medication.
- Alternatives to medication are mostly proposed by staff, and the feedback on as needed medication events is usually provided from nurses' point of view.

What are the implications for practice?

- Patients' views on decision-making and evaluation should be noticed and documented more.
- Patient participation can be promoted by planning as needed medication and its alternatives beforehand.

Relevance statement

The role of patient participation is highlighted in mental healthcare as a part of psychiatric patients' human rights and dignity. This study aims to improve the awareness and understanding of patient participation in PRN that is, and most probably will remain, a common practice in psychiatric patients' care. The results of this study can be used to evaluate and develop patient participation in mental health nursing practice. On an organizational level, systematic guidelines on PRN practices can be elaborated and used as tools to ensure the realization of patient participation in the care and its documentation.

Patient participation in pro re nata medication in forensic psychiatric care: a nursing document analysis

Pro re nata (PRN) refers to medication used as needed when acute symptoms arise. Most psychiatric inpatients have been prescribed PRN for psychiatric indications (Haw & Wolstencroft, 2014); they also use it for physical symptoms (Goedhard, Stolker, Nijman, Egberts, & Heerdink, 2007). PRN is prescribed by physicians but mostly administered at nurses' discretion (Barr, Wynaden, & Heslop, 2018; Douglas-Hall & Whicher, 2015; Martin, Arora, Fischler, & Tremblay, 2017). In PRN medication treatment, as in healthcare in general, patient participation is a guiding principle (Castro, van Regenmortel, Vanhaecht, Sermeus, & van Hecke, 2016). Patient participation in PRN means that patients have opportunities to take the initiative in PRN administrations, they are engaged in decision-making concerning PRN and its alternatives, and their feedback on medication is observed (Hipp, Kuosmanen, Repo-Tiihonen, Leinonen, Louheranta, & Kangasniemi, 2018).

Patients' participation denotes that both PRN and non-pharmacological strategies are planned based on patients' individual needs (Hilton & Whiteford, 2008). Patients' preferences for methods used in acute crisis can be reviewed in advance (Farrelly et al., 2016). For PRN use, the prescription should include a clear proactive indication for administration (Baker, Lovell, Harris, & Campbell, 2007b; Hilton & Whiteford, 2008).

Patients and staff have reported that patients initiated most PRN for anxiety (Barr et al., 2018; Martin, Ham, & Hilton, 2018b). However, patients' requests were documented in patient records in merely 5% of PRN administrations (Curtis, Baker, & Reid, 2007). One study found that, during two weeks, 12% patients demanded PRN when it was not required or justified by nurses (Richardson et al., 2015).

After an initiation, the decision is to either reject the initiation or administer medication. Firstly, patients can refuse to take PRN offered by staff (Duxbury et al., 2010; Richardson et al., 2015).

However, PRN initially refused is often administered later (Richardson et al., 2015). Secondly, staff can deny inpatients' PRN requests (Barr et al., 2018; Duxbury et al., 2010). For example, if the patient has a substance use disorder, staff can interpret requests as drug-seeking behaviour (Baker, Lovell, & Harris, 2007a; Usher, Baker, & Holmes, 2010).

Decision-making on PRN includes exploring non-pharmacological strategies. Alternatives, most commonly individual support, have been documented in about a third of PRN administrations (Curtis et al., 2007; Martin et al., 2018a). Staff have suggested that patients' regular PRN requests are barriers against attempting non-pharmacological strategies (Martin et al., 2018b). PRN reliance has emerged as a drawback of patient participation (Martin et al., 2017, 2018a). On the other hand, PRN can be a feasible approach enabling patients to participate in their own care (Sinclair, Chick, Sørensen, Kiefer, Batel, & Gual, 2014).

Both mental healthcare staff (Baker et al., 2007a; Barr et al., 2018) and patients (Cleary, Horsfall, Jackson, O'Hara-Aarons, & Hunt, 2012) have reported PRN to have advantages and disadvantages. Documented evaluations have mostly been positive (Haw & Wolstencroft, 2014; Martin et al., 2017), especially when PRN was administered on patients' request (Stewart, Robson, Chaplin, Quirk, & Bowers, 2012).

In forensic psychiatry, patients' care is involuntary because of their psychotic illness and their risk of endangering their own or other peoples' health or safety, and when no other psychiatric service suffices (Mental Health Act, 1990; Putkonen & Völlm, 2007; Seppänen, Joelssen, Ahlgren-Rimpiläinen, & Repo-Tiihonen, 2020). In relation to PRN medication, it is noteworthy that the length of admission in a forensic psychiatric hospital is usually for several years (Seppänen et al., 2020), longer than in general inpatient services. Further, PRN might be more liberally prescribed in forensic settings where patients commonly pose a high risk of violence (Haw & Wolstencroft, 2014).

Earlier studies have indicated deficiencies in achieving patient participation in PRN (Baker et al., 2007b; Barr et al., 2018) and described power imbalance between patients and professionals (Baker, Lovell, Easton, & Harris, 2006; Cleary et al., 2012; Martin et al., 2018b). Such power dynamics can be prevalent in forensic psychiatric settings (Haines et al., 2018; Jacob & Foth, 2013). We lack knowledge about patient participation in PRN (Wright, Stewart, & Bowers, 2012). Previous studies have focused on the what and how of PRN medication administration; we know little of the initiators of these events and the occasions in which the decision has been not to administer medication. Further, PRN medication for physical reasons has rarely been studied. To respond to the urgent need to investigate patient participation in PRN, we chose to analyse nursing documentation as it provides reliable comparative data that is not based on participants' conceptions of the issue or affected by researcher inference (Bowen, 2009).

Aim

This study aims to describe and explain long-term psychiatric inpatients' participation in PRN medication, based on nursing documentation. We examined patient participation in relation to planning and initiation of, as well as decisions and feedback on PRN for both physical and mental health issues. Our research questions were:

- For how many patients is PRN planned? What other strategies have patients requested?
- Who initiates PRN? What kinds of PRN decisions occur?
- Besides or instead of PRN, what kind of non-pharmacological strategies are used, and how often? Who initiates them?
- How often and from whose point of view is feedback on PRN documented?

Method

We conducted a cross-sectional study of nursing documents in a Finnish forensic psychiatric hospital in spring 2018. In this retrospective file review, we collected the data by using an observation sheet we developed based on the literature. Data analysis involved statistical methods.

Research setting

This study was conducted in a state-run hospital that provides specialized forensic psychiatric services and mental examinations. This hospital has 284 beds for adults and 13 for under 18-year-old patients. As outlined in the Mental Health Act (1990), the three groups of patients are forensic patients who have committed a crime but, because of their mental illness, were found to be unaccountable (51% at the end of 2017), dangerous/difficult-to-treat patients transferred from municipal hospitals due to safety risks (42%), and patients undergoing court-ordered mental state examination (7%).

The most common primary diagnosis is schizophrenia. Further, patients commonly have a history of substance misuse and uncontrolled aggression. The hospital uses Global Assessment of Functioning (GAF) (Monrad Aas, Sonesson, & Torp, 2018) to assess symptom severity and the Violence Risk Screening -10 tool (V-RISK-10) (Bjørkly, Hartvig, Heggen, Brauer, & Moger, 2009) to evaluate propensity for violence.

In this hospital, treatment is based on patient-oriented care philosophy. This means that patients are encouraged to participate in their care planning, assessment, and decision-making. Physicians (*n* = 19.5 person years) are responsible for decisions regarding patients' treatment and pharmacological care, including both scheduled medication and PRN. Registered nurses (*n* = 169) with over six months' work experience are eligible to offer pharmacological care. All PRN administrations are double-checked.

Data collection

Research data comprises patient documents; the research permit required us to obtain patients' informed consent to access these. Our contact person at the hospital informed all the head nurses about the study. We organized meetings in all 13 adult wards to apprise patients of the study and invited them to discuss with a researcher and enrol. We left study leaflets for patients who were absent and encouraged them to enrol via the head nurses there.

Patients were eligible to participate if they were adults who have been in the hospital for over one year with a legal status of forensic or dangerous/difficult-to-treat and capable of giving voluntary informed consent. At the time of data collection, 224 patients met our inclusion criteria; 79 enrolled. Physicians at the hospital assessed patients' capability to give informed consent; one incompetent patient was excluded. We also excluded ten patients hospitalised for less than a year and one discharged before data collection. Thus, of all potential patients, 67 (30%) participated.

For data collection, we developed an observation sheet based on previous knowledge of patient participation in PRN in psychiatric inpatient settings (e.g. Hipp et al., 2018; Stewart et al., 2012; Wright et al., 2012). Items focused on patient characteristics (n = 10) and on PRN medication treatment practices (n = 25). A head nurse at the hospital and the study steering group evaluated item suitability. Thereafter, we tested this sheet with 12% of the data (n = 8) to identify items that can be answered based on the content of the documents. The revised sheet was confirmed with 7% of the data (n = 5) and found relevant. The final observation sheet comprised 14 questions on patient characteristics and seven on PRN events. For the results concerning the prevalence of and reasons for PRN events, see our previously published paper (Hipp, Repo-Tiihonen, Kuosmanen, Katajisto, & Kangasniemi, 2020).

We collected data from the electronic patient information system. Researcher (K.H.) reviewed patients' background information and their crisis plans (Table 1). Then both medication charts and

free text in daily nursing notes in the one-year period (1 April 2017 – 31 March 2018) were reviewed to identify PRN events. We defined PRN as medication given as needed and voluntarily accepted. We included all PRN medications except the following non-pharmacological items: throat lozenges, nicotine products, lotions, and creams. We extracted all the events in which PRN had been as discussed, administered, or both. If PRN had been discussed, we reviewed whether it was administered within two hours of the discussion. From each event, we extracted documentations of non-pharmacological strategies and their initiators. From feedback on PRN events, we coded its viewpoint, the efficacy of the medication, and notes on side effects.

Data analysis

The data was collected in an Excel spreadsheet (Microsoft Office, WA, USA). First, we extracted data on **patient characteristics**, such as age and primary diagnosis. To examine the planning, we extracted the indications in **PRN prescriptions**. To identify **non-pharmacological strategies planned**, we reviewed the crisis plans for the study period. We then extracted data on **types of PRN events**. For example, events with notes such as "patient grudgingly took the medicine" and "only verbally resists" were coded as persuaded administration. When nurses had documented that patients requested PRN but then hesitated or were loath to take it, we coded such events as discrepancy in patients' expression. If documentation only included medicine name and administration time, we coded such events in the "PRN received" category. During data collection, we thus identified nine PRN event types. From these, **patient-initiative and staff-initiative** events were separated. Events with no documentation of patients' request or other preference were considered staff-initiative. We also separated event types based on whether medication was administered or only discussed. **Non-pharmacological strategies** were coded into five categories and their initiators into seven. Six categories were used to code **feedback** on PRN.

For the statistical analysis, the data were exported to SPSS version 24 (IBM Corp, NY, USA). To depict patient characteristics and PRN events, we used descriptive statistical methods. Non-

parametric tests were chosen in the data analysis because the continuous variables were not normally distributed. A *p*-value of .05 was the cut-off for significance. To determine relations between continuous variables, such as the number of patient-initiative and staff-initiative events, we used Spearman correlation (r_s). To compare differences between groups, we chose the Mann-Whitney U test. These comparisons were between patients who did or did not have medication in their crisis plan, as well as the number of PRN prescriptions and events.

Research ethics approval

The study was reviewed and approved by the Committee on Research Ethics of the University of Eastern Finland and the hospital board. In line with the research permit from the hospital board, we obtained written informed consent from the participants to access their nursing documents and incorporate these into the research data. We allocated patients adequate time for decision-making about participation, by enabling them to enrol after the information meetings.

Results

Patient characteristics

Patients whose documents were reviewed were mostly men (86%), and their median age was 45 (Table 1). Two-thirds of the patients were forensic, and others had a dangerous/difficult-to-treat status. The most common primary diagnosis was schizophrenia, and 70% of all patients had a substance misuse disorder. The patients' GAF values denoted severe impairment in daily functioning and their V-RISK-10 values signified high violence risk. The median of the patients' length of stay was five years.

Place Table 1 about here

Planning of PRN and its alternatives

PRN prescriptions. All patients whose documents were reviewed (n = 67) were prescribed PRN. The median of PRN orders was four, with a maximum of 11 prescriptions, per patient (Table 1).

All but one patient had PRN prescription(s) for physical indications (Table 1). The most typical indication for PRN orders was pain (88% of patients). PRNs were also commonly prescribed for constipation (45%) and fever or flu (36%). Other indications charted to more than one patient in descending order were skin disorders; shortness of breath; heartburn; hemorrhoids; allergy; problems in the ears, eyes, or nose; heart disease symptoms; surface analgesia; extrapyramidal symptoms; nausea; urticaria; and dry mouth.

PRN for psychiatric reasons or insomnia was prescribed for two-thirds of patients (Table 1). Indications included psychotic disorders (33% of patients), insomnia (33%), and anxiety (28%).

PRN and other strategies in crisis plans. Over half of the patients (57%) had expressed their wish for medication in their plan for a psychiatric crisis (Table 2). Despite their wish, such patients had statistically significantly fewer PRN prescriptions for psychiatric indications; they also received PRN for psychiatric reasons notably more rarely than patients who had not named medication in their plan.

Place Table 2 about here

Patients had considered, in addition to medication, various non-pharmacological interventions in their crisis plans. The most typical interventions mentioned were conversation with staff (78% of patients), listening to music (61%), diverse activities (52%), sports and being outdoors (50%), resting and sleeping (39%), anxiety-coping strategies such as relaxing and breathing exercises (39%), and time-out and own space (34%).

Initiatives in and decisions on PRN events

Of all the events, 52% were patient-initiative and 48% were staff-initiative (Table 3). Results of the Spearman correlation indicated that patients who had initiated PRN often also had more staff-initiative events. Of all the events, in 98%, medication was administered; in the rest, PRN was discussed, but medication was not administered. Patients who frequently received PRN also had statistically significantly more events with no medication administered. Event types varied most in PRN for psychiatric reasons.

Place Table 3 about here

Patient-initiative PRN events. In half of all PRN events, medication was administered on patients' request (Table 3). Almost all patients (94%) had requested PRN in the one-year period. In two-thirds of these requests, patients sought PRN for physical reasons. Events in which staff denied requests, mostly linked to PRN for psychiatric reasons, were rare. Still, a third of patients (36%) had their requests denied. In 8% of the denials, PRN was administered in two hours of the discussion.

Staff documented that, at times, instead of the medication requested, they had administered another drug (Table 3). Of these events, 48% were associated with PRN for psychiatric reasons. More rarely documented events included discrepancy in patients' expression of their opinion. In addition, nurses had documented patients' wishes to seek PRN later or their attempt to cope henceforth without PRN.

Staff-initiative PRN events. In 47% of PRN events, patients received medication that staff offered (Table 3). Documentation included only 50 events in which the patient refused to take the medication, but they occurred in almost a third of patients (30%). Almost two-thirds (62%) of refusals concerned PRN for psychiatric reasons. The most commonly refused physical PRNs were for pain, heartburn, and bowel dysfunctions. In 30% of refusals, medication was administered in two hours.

Persuaded PRN administration was documented in 18 events, and 10 patients were subjected to such administration (Table 3). Almost all these events were related to psychiatric reasons. More rarely documented staff-initiative events were situations in which staff encouraged patients to take PRN later. These events were mostly (55%) associated with insomnia.

Non-pharmacological strategies documented

Non-pharmacological strategies proposed or tried were documented in 6% of PRN events that concerned 64% of the patients. These strategies were more often documented in events in which medication was not administered. They were proposed or tried in 56% of patients' PRN refusals and in 43% of denied PRN requests.

The most commonly documented non-pharmacological strategies were activities (47%) such as sports, massage, sauna or shower, listening to music, watching TV, eating, playing games, studying, and guided group activities. The second most common were conversational methods, including discussions and patient education (30%). Rest and sleeping were also documented (10%). Sometimes, conversation was used in a combination with some other method (6%). Other non-pharmacological strategies (6%) included visiting dentists, transferring patients to another unit in the hospital, and restrictive interventions, i.e. one-to-one observation, manual restraint, restriction with clothes, and seclusion.

Non-pharmacological strategies for physical reasons, psychiatric reasons, and insomnia. In PRN events for physical reasons, non-pharmacological strategies were documented in 3%. They were especially rare in pain-related PRN events. Activities were distinctly most frequently used (71%) in PRN events for all physical conditions. In events with PRN for psychiatric reasons, non-pharmacological strategies were documented in 15%. In these events, activities (38%) and conversational interventions (39%) were equally used. For insomnia, non-pharmacological strategies were documented in 3%, and they were most commonly rest (47%) or activities (41%).

Initiators of non-pharmacological strategies. In the 506 events in which non-pharmacological strategies were documented, the initiator was vague in 59%. When the initiator was documented, it was most commonly a nurse (76%). In a third of these cases, nurses were documented as stating that patients were incapable or unwilling to try the strategy proposed. Non-pharmacological strategies were also executed against patients' will (3%), mostly linked to persuaded administration or PRN refusal. (Table 4.)

Place Table 4 about here

When patients initiated alternative strategies (24%), they usually had tried them, most commonly activities, before seeking PRN. Some patients' suggestions, including smoking, restraint, and one-to-one observation, were documented as rejected by nurses. (Table 4.)

Feedback on PRN medication

In 17% of PRN events, nursing documentation included a report of feedback about the effects of PRN medication. Side effects of PRN were documented in only five events, three of them reporting dizziness after patients used benzodiazepines.

When feedback was documented, the evaluation was usually described from nurses' point of view (71%), and it was positive in 80% of these cases. Documentation of patients' opinion reported positive effects in half of the events; in the remaining half, medication failed to help. In five events, nurses' and patients' feedback were discordant; for example, they reflected different notions of whether the patient had been sleeping.

Feedback was similar in staff-initiative and patient-initiative events. An exception was a group of persuaded administration events, which were almost always noted as positive by nurses. When patients' PRN requests were denied, the feedback was positive in 77% of cases. Most of these were documented from a nurse's viewpoint; patients' opinions also were more often positive than

negative. In contrast, in 80% of patients' PRN refusals, the feedback was negative, and all evaluations were from nurses' viewpoint.

Discussion

All patients had named non-pharmacological strategies, and half of them had suggested medication for psychiatric acute symptoms. Based on documentation, patients initiated half of the PRN events; the other half was staff-initiated. Nurses rejected a part of patients' requests; contrariwise, some patients refused to take PRN that staff offered. Patients' and staff's views differed mostly in PRN for psychiatric symptoms. Non-pharmacological strategies were limited, especially with PRN for physical symptoms; the initiator of alternatives was usually a nurse. Documented feedback on PRN was mostly from nurses' viewpoint, and they evaluated outcomes as positive more often than patients did.

Planning of PRN and its alternatives

Patients had participated in PRN by considering, in advance, methods useful for them in acute psychiatric crisis. Of note, neither the literature nor our data provide information on how the treatment of acute physical symptoms is planned with patients. Our study indicates that most patients were charted PRN similarly to those in an earlier study (Haw & Wolstencroft, 2014). Patients' role in the prescribing process remains unclear due to the fragmented documentation of decision-making behind the PRN prescriptions as well as initiatives and discussions that lacked fruition. Interestingly, patients who had expressed their wish that medication would be used for them in acute psychiatric crises had significantly fewer prescriptions and PRN events for psychiatric reasons than patients who had not named medication in their plan. This suggests that patients' intentions are elicited but these might not be realized. While recommending patient participation in all PRN processes (Baker et al., 2007b), we need to investigate how patients consider their participation in the planning influences their treatment.

Initiatives and decisions on PRN

Patient participation was evident in their active role as documented PRN initiators. This result casts a new light on patient participation; patient-initiative events for psychiatric reasons were substantially more common than in previous audits on psychotropic PRN (Curtis et al., 2007; Haw & Wolstencroft, 2014; Richardson et al., 2015), partly due to our long follow-up, unlike the 2-4-week periods in earlier studies. In long-term treatment, such as in forensic mental health, inpatients have probably learned to identify their symptoms and to participate in treatment. However, continuous requests may also be a means to maintain contact with staff. If so, medication does not respond to patients' genuine need to be noticed and heard.

Our results suggest that patients participated in decision-making and that PRN was mostly administered in agreement between patient and staff. However, they also had divergent opinions on medication needs. This finding adds to our understanding of the specificity of PRN decisions in inpatient settings. Events in which patients' PRN requests were denied were infrequent, but they occurred with more than a third of patients. The rarity of denials can reflect that nurses generally agree with patients' PRN requests, as noted in the literature (Martin et al., 2018b). It implies that patients also have power in PRN, while the literature indicates professionals have control over patients in PRN practices (Baker et al., 2006; Cleary et al., 2012). However, nurses interviewed responded that they commonly declined patients' requests (Barr et al., 2018); it is likely that these events were undocumented. This inference comes from nurses' notes such as "patient has not requested PRN like usually".

Patient participation in PRN includes their consent for medication. One-third of the patients had refused PRN that staff ordered. Still, patients' refusals were quite rare; in many cases, PRN was later administered, similarly to a prior study (Richardson et al., 2015). A few events of persuaded administration indicated that patients may receive medication against their will. This is in line with

patients interviewed reporting being coerced into taking PRN (Cleary et al., 2012). In these situations, a fine line exists between PRN and forced medication. Further studies could investigate the consequences of refusals.

Severe mental illnesses and symptoms may impede patient participation (Angel & Frederiksen, 2015; Castro et al., 2016), and such participation has special challenges in forensic psychiatric hospitals where patients are involuntarily admitted based on their impaired decision-making (Selvin, Almqvist, Kjellin, & Schröder, 2016). Acute psychiatric symptoms can impair patients' ability to assess their own medication needs (Jørgensen & Rendtroff, 2017; Selvin et al., 2016; Stomski & Morrison, 2017). Nursing documentation revealed that patients can struggle with expressing their need for PRN and that their opinions can rapidly change. In these situations, healthcare staff have a professional and ethical responsibility to consider what is best for patients; in involuntary treatment, they are authorized by law to decide on patients' behalf(Losier, Mamak, & Moulden, 2017).

Non-pharmacological strategies used

The rarity of non-pharmacological strategies used strengthens the earlier concern about relying on PRN in acute situations (Barr et al., 2018; Douglas-Hall & Whicher, 2015; Martin et al., 2018a). This has been recognized as a drawback of patient participation in PRN (Martin et al., 2017, 2018a). Relying on PRN apparently prevails especially among patients with longer hospital stays (Martin et al., 2018a). Plausibly, forensic mental health staff are more aware of long-term patients' symptoms and can recognize situations where medication is more appropriate than other interventions are. Note that, if patients' symptoms preclude contact and cooperation, PRN can be a means to enable the use of other methods. Our results suggest that non-pharmacological strategies were frequently documented in events in which PRN was not administered. These results illustrate that nurses try to

find alternative solutions if they deny patients' PRN requests or if patients refuse to take medication.

Our study provides new knowledge about initiators of non-pharmacological strategies. Patients had participated by trying non-pharmacological strategies before requesting PRN. Most commonly, however, the alternatives were proposed by a nurse. Quite often, patients were unable or unwilling to try them. Some interventions patients suggested were denied; these were usually restrictive methods. Psychiatric care policy mandates patients be treated in the least restrictive manner (Seppänen, Törmänen, Shaw, & Kennedy, 2018; World Health Organization, 2013). In clinical reality, staff may have to balance between patients' wishes and psychiatric protocols.

Concerning psychiatric reasons, previous studies have indicated that support and counselling are the most frequently used (Martin et al., 2018a, 2018b); in our data, conversational methods and activities were equally documented. Based on the literature (Martin et al., 2018b), we assume that non-pharmacological strategies are undocumented. A wide range of interventions is continuously used in patients' care; surely, they reduce PRN need and use. Non-pharmacological strategies were notably rare in PRN events for physical reasons. While the literature reports reliance on psychotropic PRN (Barlow, 2014; Barr et al., 2018; Douglas-Hall & Whicher, 2015; Martin et al., 2018a), more research is necessary to explore whether this issue exists in physical PRN.

Feedback on PRN

Feedback on PRN was mostly documented from nurses' viewpoint. This is new knowledge, and it potentially illustrates lack of patient participation in assessment. Overall, the documentation of feedback was deficient, similarly to earlier studies (Curtis et al., 2007; Haw & Wolstencroft, 2014); Martin et al. (2017), however, reported feedback in 90% of 368 PRN incidences. In much feedback documented, such as "medicine has helped" or "pain has decreased", the viewpoint was unclear. This vagueness should be noted when developing nursing documentation because staff and patient

feedback can be discordant, and both stakeholders' views are relevant. It is important that we have elaborate systematic guidelines on how to gather patients' feedback on PRN and that patients are encouraged to report their perceptions.

Nurses' evaluations were more often positive, compared to patients' feedback. Presumably, nurses find PRN more effective, or they are more likely to report evaluation by patients when it is negative. Patients had often noted that PRN was not helping. Interestingly, they continued to request it, reflecting their trust in the convenience of medication. Earlier studies have indicated nurses' positive feedback on PRN medication (Haw & Wolstencroft, 2014; Martin et al., 2018b). We found that positive effects were commonly documented also in events where patients' requests were denied, indicating that a desirable settlement is possible without medication. In contrast, almost without exception, nurses documented positive outcomes of persuaded PRN administrations and negative outcomes of patients' medication refusals, highlighting that sometimes nurses view medication as indispensable.

The rarity of side effects in our data and the literature (Barlow, 2014; Haw & Wolstencroft, 2014; Martin et al., 2017) is a positive finding. However, patients are not perhaps reporting side effects, or their reports are not documented. If so, a systematic approach is necessary to enquire about and document patients' experiences and nurses' observations of PRN effects and side effects. More research is needed on the evaluation of PRN events, PRN medication treatment as a whole, and patients' participation in this evaluation.

Limitations

The limitations of this study concern the cohort, observation sheet, and data. The 67 patients constituted a sample of 224 adult patients in a hospital for over one year. The low response rate and a sample that was not based on power analysis limited the generalisability of our findings. We offered patients an equal choice to participate, but some were unwilling to enrol or incapable of

enrolling, potentially biasing our sample. However, the sample reflected the demographics of patients at that hospital. Forensic care is a special psychiatric setting and differs between countries (Nedopil, Taylor, & Gunn, 2015; Seppänen et al., 2018). Further, it should be noted that our cohort comprised involuntarily detained patients. So, further studies are needed to affirm the extrapolation of our results.

The observation sheet was developed for this study. We retrospectively collected data from documents not produced for research (Bowen, 2009). However, poor documentation of PRN exists (Barlow, 2014; Martin et al., 2017), and deficient notes also emerged in our study, especially concerning initiators of PRN events. We found some inconsistencies between medication charts and the daily nursing documentation. For example, although patients' requests were documented in a medication chart, in the daily nursing documentation, nurses had written that they suggested or persuaded patients to take PRN. Thus, a strength of our study was that both medication charts and daily documentation were reviewed.

The long study period produced numerous PRN events. Nonetheless, the feedback on PRN and the most uncommon types of PRN events were rarely documented. An observation study could yield more knowledge on PRN events and feedback. Interviewing all PRN stakeholders could amplify our understanding of patient participation in PRN.

Conclusions

Our results indicate that patients take the initiative in PRN more than the literature suggests. PRN administrations mainly occur in agreement between patient and staff, two groups of actors who do not always concur in the need for medication. While targeting patient participation, nurses balance patients' preferences and a professional assessment of the need for medication. Sometimes, PRN can be the best solution to alleviate patients' symptoms and hence a means to support patients' opportunities to participate.

More research, especially from patients' point of view, is needed into patients' role in planning PRN medication and its alternatives. Non-pharmacological strategies are mostly staff-initiated; and their documentation is rare, especially in PRN for physical reasons. Acute symptoms can make patient participation challenging. Thus, discussing patients' individual wishes and opinions in advance is urgent. Patients' views also need to be more heard and documented in PRN evaluation.

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Table 1

Characteristics of patients (n = 67) whose documents were reviewed.

Characteristic	*n*	%	*Mdn*	range
Age (in years)			45	21–72
Gender				
Male	58	86		
Female	9	14		
Finnish language				
Native language	64	95		
Able to communicate without an interpreter	3	5		
Level of education				
Primary school not completed	4	6		
Primary school	36	54		
Secondary education	23	34		
Higher education	2	3		
Unknown	2	3		
Status				
Forensic	42	63		
Dangerous/difficult-to-treat	25	37		
Primary diagnosis				
Schizophrenia	46	69		
Schizoaffective disorder	14	21		
Delusional disorder	4	6		
Mood disorder	3	4		
Substance misuse disorder				
Yes	47	70		
No	20	30		
Length of stay (in years)			5	1–29
Measures of functioning and violence risk				
GAF value (scale 1–100)			16	3–31
V-RISK-10 value (scale 0–20)			16	7–20
Number of PRN prescriptions			4	1–11
Physical indications			3	0–8
Psychiatric indications and insomnia			1	0–3
Number of scheduled medication prescriptions			6	1–16
Physical indications			3	0–12
Psychiatric indications and insomnia			3	1–8
Medication in a crisis plan				
Yes	38	57		
No	29	43		

Table 2

Associations between plan for psychiatric crisis and the number of PRN prescriptions and events for psychiatric reasons (Mann-Whitney U-test).

Medication in a crisis plan		PRN prescriptions for psychiatric reasons		PRN events for psychiatric reasons	
n	*Mdn*	Range	*Mdn*	Range	
Yes	38	0.5	0-3	0	0-133
No	29	1	0-3	14	0-385
		$Z = 3.382$, $p = .001$		$Z = 2.123$, $p = .001$	

Table 3

Types of PRN events and their prevalence in patients' (n = 67) documents.

Type of PRN event	All events	Physical reasons		Psychiatric reasons		Insomnia		Patients with events	
	n	*n*	%	*n*	%	*n*	%	*n*	%
Patient-initiative PRN events									
Requested PRN administered[1]	4316	2906	67	867	20	543	13	63	94
Patient's request for PRN denied[2]	140	47	34	66	47	27	19	24	36
Other-than-requested PRN administered[1]	25	9	36	12	48	4	16	12	18
Discrepancy in patient's expression[1,2]	10	3	30	7	70	0	0	6	9
Patient informed future intentions[2]	6	1	17	4	66	1	17	6	9
Staff-initiative PRN events									
Offered PRN administered[1]	4050	2160	53	1239	31	651	16	64	96
Patient refused PRN offered[2]	50	16	32	31	62	3	6	20	30
Persuaded administration[1]	18	1	6	16	88	1	6	10	15
Staff encouraged patient to take PRN later[2]	11	2	18	3	27	6	55	6	9
All PRN events	8626	5145	60	2245	26	1236	14	66	99
	Spearman correlation			*p*-value					
Patient-initiative PRN events * Staff-initiative PRN events	$r_s = .904$			$p < .001$					
PRN events with medication administered * PRN events with no medication administered	$r_s = .532$			$p < .001$					

[1]Medication administered, [2]Medication not administered

Table 4

Documented initiators of non-pharmacological strategies.

Initiator	Activities		Conversational		Rest/sleeping		Other		Combination		Total	
	n	%	*n*	%	*n*	%	*n*	%	*n*	%	*n*	%
Staff-initiative												
Nurse proposed	54	53	12	33	15	50	0	0	6	60	87	42
Patient unwilling or incapable	20	19	23	64	4	13	4	15	1	10	52	25
Against patient's will	0	0	0	0	0	0	15	57	1	10	16	8
Patient-initiative												
Patient tried before	20	19	0	0	9	30	1	4	0	0	30	15
Patient proposed	7	7	0	0	2	7	3	12	1	10	13	6
Patient's proposal rejected	2	2	1	3	0	0	3	12	1	10	7	4
Total	103	100	36	100	30	100	26	100	10	100	205	100