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REVIEW ARTICLE

Controlling medication non-adherence in chronic illness

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Abstract

Patient adherence during the treatment period must be considered because patient adherence plays an important role in achieving therapeutic success, especially for chronic diseases. Treatment non-adherence is a common and complex problem. Failure to follow a treatment schedule can lead to major health complications, including death. Several interventions are needed to control patient non-adherence. Several interventions can support and improve patient adherence. These include digital interventions, increasing patient knowledge and understanding of the treatment undertaken with counseling, and Drug Information Services (PIO). They provide educational leaflets, digital pillbox reminders, Pill Cards; family support; diaries; keeping treatment commitments. Based on this, it is necessary to have an intervention method in terms of education (educational), behavior (behavior), and attitude (affective) to achieve patient adherence and the success of chronic disease therapy.

Keywords: Non-adherence; treatment; chronic disease control; medication; patient care

Introduction

A chronic disease is a condition or illness that lasts a long time, usually three months or more. The most common chronic diseases include heart disease, stroke, respiratory disease, cancer, hypertension and diabetes (Souza-Pereira et al., 2020). To immediately achieve the success or recovery of patient therapy, good cooperation is needed between patients and their families with health service providers. Various parties must work together to achieve patient compliance in treatment because patient compliance is essential in achieving therapeutic success, especially for chronic diseases. Adherence is a critical component of treatment, especially in the long-term treatment of chronic diseases (Lachaine et al., 2013; Hu et al., 2014). Also, adherence can be defined as the extent to which the patient can use the drug regimen (interval and dose) as determined by the doctor's prescription (Zeber et al., 2013). There are five factors that can cause non-compliance: socio-economic factors, team and health system factors, condition factors, therapy factors and patient factors (Edi, 2015; Kardas et al., 2013).

Medication non-adherence is a common and complex problem. Failure to follow the treatment schedule can lead to many health complications, including death. Non-adherence to medication can be seen from the dose, how to take medication, time to take medication, and period of drugs that are not following the rules. The types of non-compliance include intentional non-compliance and unintentional non-compliance. Limited medical costs, patient apathy, and patient distrust of drug effectiveness cause deliberate non-adherence. Unintentional non-compliance is caused by patients forgetting to take medication, ignorance of treatment instructions, and errors in reading etiquette.

Some of the causes of patient non-adherence to taking medication include not being supervised by the Drug Swallowing Supervisor (PMO), patients not controlling medicines according to the prescribed schedule, financial problems, limited social support, communication media, and interaction with health workers (Loriana et al., 2014; Santi, 2017). Therefore, appropriate interventions are needed to improve patient adherence to treatment through education (educational), behaviour (behavioural), and attitudes (affective). The approach through schooling is made by providing information or skills that are conveyed clearly and appropriately to the patient's needs. The behavioural system uses reminder techniques via telephone/sms, alarms to remember, setting goals, and providing counselling or visiting the patient's home for assistance as for the attitude approach, namely by providing encouragement and emotional support to patients (Triyanto et al., 2015). Based on previous research, it is known that several interventions can support and improve patient compliance. These interventions include digital

interventions; increasing patients' knowledge and understanding of their treatment through counselling, Drug Information Services (PIO), providing educational leaflets, digital pillbox reminders and pill cards; family support; and diary; and maintaining treatment commitments.

Digital Intervention

A study shows that digital medication reminder applications such as AMINO (Drinking Drug Alarm) can be used as an alternative to improve medication adherence and treatment success for hypertension patients, which can be seen from the significant impact of reducing the patient's blood pressure (Yusmaniar et al., 2020). The AMINO application will provide instructions for taking medicine through an alarm sound and a display on the phone screen according to the drug information specifications. Also, the existence of a Web or Mobile system can help improve treatment adherence (Silva et al., 2018). The device can collect data and can process information about treatment. Meanwhile, text message intervention (TMI) can improve patient compliance in rural China, where most patients suffer from relatively poor type 2 diabetes mellitus (Chen et al., 2018).

Medication Reminder and Pill Card

Several other interventions that can help improve patient medication adherence include counselling, Drug Information Services (PIO), educational leaflets, digital pillbox reminders and Pill Cards. The Pill Card is easy to use, understandable and can increase knowledge about the necessary treatment (Kripalani et al., 2007). Especially patients who forget quickly and have complex treatment regimens such as hypertension (Ariyani et al., 2018). The research shows that giving pill boxes can improve adherence and reduce systolic and diastolic blood pressure in geriatric patients with hypertension in Batam City (Sammulia et al., 2016). Giving a medication reminder chart can improve compliance but has not reduced systolic and diastolic blood pressure in geriatric patients with hypertension in Batam City. A pill box is better than a medication reminder chart in improving adherence and decreasing patients' systolic and diastolic blood pressure. Commitment to drug use by giving intervention pill reminders did not affect the decrease in blood sugar of research subjects (Santi, 2017). This is because the decline and increase in blood sugar are not only based on adherence to medication use; diet and mindset (stress) also affect blood sugar.

PIO and Education

The purpose of providing drug information is to increase patient adherence to medication and support rational treatment. This is in line with a study that PIO and education increased patient compliance and decreased systolic and diastolic blood pressure (Idacahyati, 2017). Education is a form of action that can help sufferers overcome their health problems. The diet education and drug therapy influence medication adherence as medication adherence is how patients use drugs and obey all the rules and advice recommended by health workers (Nuridayanti et al., 2018). Nurses have an essential role in providing health services, including health education.

Counselling

A study stated that the brief intervention counselling provided by pharmacists positively impacted increasing medication adherence in the intervention group (Prihandiwati et al., 2018). The intervention brief counselling indirectly reduces the patient's blood sugar level, followed by increased medication adherence. Brief counselling can be more effective in minimizing counselling time so as not to interfere with the pharmaceutical service process. In addition, with brief counselling, patients will also get knowledge from people considered competent so as not to change the patient's attitude and behaviour due to tending to feel compelled or pressured to undergo treatment.

Family Support

Interventions of family support or FamLit during treatment can improve or maintain patient compliance. The Family Support Intervention (FamLit) emphasizes building understanding, communication, support and patience with the patient's family or nurse as an intermediary to improve patient medication adherence. Increased patient medication adherence can be seen through increasing patient behaviour and knowledge (Wu et al., 2019). Treatment counselling techniques in health services in India (HIS) are fundamental to increasing patient understanding of their treatment which can significantly improve patient compliance (Colvin et al., 2018).

Diary Book

A diary book can also improve patient compliance. The diary is a form of self-management, so hypertensive patients adhere to the treatment program. The diary is designed to contain written information related to hypertension. Increased compliance by using a diary can occur because the diary is a tool that can make hypertensive patients self-

confident that the ability to organize can be implemented in daily life to form respectful behaviour in taking medication (Khoiriyah & Ediati, 2015).

Conclusion

Several interventions can be carried out to improve patient medication adherence from several previous research results, including digital technology interventions, medication reminders, pill cards, drug information provision, education, counselling, family support, and diaries which are known to significantly increase adherence both between groups before and after the intervention or in studies using a control group.

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References

- Ariyani, H., Hartanto, D., & Lestari, A. (2018). Kepatuhan pasien hipertensi setelah pemberian pill card di rs x banjarmasin. *JCPS (Journal of Current Pharmaceutical Sciences)*, 1(2), 81–88.
- Chen, X. Z., Yu, S. J., Li, C. Y., Zhan, X. X., & Yan, W. R. (2018). Text message-based intervention to improve treatment adherence among rural patients with type 2 diabetes mellitus: a qualitative study. *Public Health*, 163(13), 46–53. <https://doi.org/10.1016/j.puhe.2018.06.016>
- Colvin, N. N., Mospan, C. M., Buxton, J. A., Waggett, J. D., & Gillette, C. (2018). Using Indian Health Service (IHS) counseling techniques in an independent community pharmacy to improve adherence rates among patients with diabetes, hypertension, or hyperlipidemia. *Journal of the American Pharmacists Association*, 58(4), S59–S63.e2. <https://doi.org/10.1016/j.japh.2018.04.024>
- Edi, I. G. M. S. (2015). Faktor-faktor yang mempengaruhi kepatuhan pasien pada pengobatan. *Jurnal Ilmiah Medicamento*, 1(1), 1–8. <https://doi.org/10.36733/medicamento.v1i1.719>
- Hu, D., Juarez, D. T. air., Yeboah, M., & Castillo, T. P. (2014). Interventions to increase medication adherence in African-American and Latino populations: a literature review. *Hawai'i Journal of Medicine & Public Health : A Journal of Asia Pacific Medicine & Public Health*, 73(1), 11–18.
- Idacahyati, K. (2017). Peningkatan kepatuhan pasien hipertensi dengan pemberian informasi obat. *Jurnal Kesehatan Bakti Tunas Husada*, 17(2), 243–247.
- Kardas, P., Lewek, P., & Matyjaszczyk, M. (2013). Determinants of patient adherence: a review of systematic reviews. *Frontiers in Pharmacology*, 4 JUL(July), 1–16. <https://doi.org/10.3389/fphar.2013.00091>
- Khoiriyah, A., & Ediati, A. (2015). Pengaruh buku harian untuk meningkatkan kepatuhan pada pasien hipertensi: studi kuasi eksperimen pada pasien hipertensi. *Jurnal Empati*, 4(1), 35–42.
- Kripalani, S., Robertson, R., Love-Ghaffari, M. H., Henderson, L. E., Praska, J., Strawder, A., Katz, M. G., & Jacobson, T. A. (2007). Development of an illustrated medication schedule as a low-literacy patient education tool. *Patient Education and Counseling*, 66(3), 368–377. <https://doi.org/10.1016/j.pec.2007.01.020>
- Lachaine, J., Yen, L., Beauchemin, C., & Hodgkins, P. (2013). Medication adherence and persistence in the treatment of Canadian ulcerative colitis patients: analyses with the RAMQ database. *BMC Gastroenterology*, 13(1), 1. <https://doi.org/10.1186/1471-230X-13-23>
- Loriana, R., Thaha, R. M., & Ramdan, I. M. (2014). Efek konseling terhadap pengetahuan, sikap dan kepatuhan berobat penderita tuberkulosis paru di wilayah kerja Dinas Kesehatan Kota Samarinda. *Univeristas Hasanudin*, 1–13. <http://pasca.unhas.ac.id/jurnal/files/1445b949d295c9486aeb541ca379aefb.pdf>
- Nuridayanti, A., Makiyah, N., & Rahmah. (2018). Pengaruh edukasi terhadap kepatuhan minum obat penderita hipertensi di pos pembinaan terpadu kelurahan Mojojoto kota Kediri Jawa Timur. *Jurnal Kesehatan Karya Husada*, 6(1), 1–7.
- Prihandiwati, E., Rahem, A., & Rachmawati. (2018). Pengaruh brief counseling terhadap kepatuhan minum obat dan kadar gula darah pasien diabetes mellitus tipe II di RSUD Ulin Banjarmasin. *Calyptra*, 7(1), 2068–2085.
- Sammulia, S. F., Rahmawati, F., & Andayani, T. M. (2016). Perbandingan pill box dan medication chart dalam meningkatkan kepatuhan dan outcome klinik geriatri kota Batam. *Jurnal Manajemen Dan Pelayanan Farmasi*, 6(4), 288–296.
- Santi, M. D. S. (2017). Pengaruh intervensi pill reminder dalam penggunaan obat oral anti diabetes (OAD) terhadap peningkatan kepatuhan pasien diabetes mellitus tipe 2 di rumah diabetes Universitas Surabaya. *Calyptra: Jurnal Ilmiah Mahasiswa Universitas Surabaya*, 6(2), 567–576.
- Silva, V., Souza, V. S., Da Cruz, R. G., Jazdi, N., & De Lucena, V. F. (2018). Mobi health: a system to improve medication adherence in hypertensive patients. *Procedia Computer Science*, 141(2017), 366–373. <https://doi.org/10.1016/j.procs.2018.10.188>

- Souza-Pereira, L., Pombo, N., Ouhbi, S., Felizardo, V., & Garcia, N. (2020). Clinical decision support systems for chronic diseases: a systematic literature review. *Computer Methods and Programs in Biomedicine*, 195. <https://doi.org/10.1016/j.cmpb.2020.105565>
- Triyanto, E., Isworo, A., & Rahayu, E. (2015). Model pemberdayaan terpadu untuk meningkatkan kepatuhan pasien diabetes mellitus. *JURNAL MKMI*, 228-234.
- Wu, J. R., Mark, B., Knafl, G. J., Dunbar, S. B., Chang, P. P., & DeWalt, D. A. (2019). A multi-component, family-focused and literacy-sensitive intervention to improve medication adherence in patients with heart failure—A randomized controlled trial. *Heart and Lung*, 48(6), 507-514. <https://doi.org/10.1016/j.hrtlng.2019.05.011>
- Yusmaniar, Susanto, Y., Surahman, & Alfian, R. (2020). Pengaruh alarm minum obat (amino) untuk meningkatkan kepatuhan minum obat pasien hipertensi. *Jurnal Ilmiah Ibnu Sina*, 5(1), 96-107.
- Zeber, J. E., Manias, E., Williams, A. F., Hutchins, D., Udezi, W. A., Roberts, C. S., & Peterson, A. M. (2013). A systematic literature review of psychosocial and behavioral factors associated with initial medication adherence: a report of the ISPOR medication adherence & persistence special interest group. *Value in Health*, 16(5), 891-900. <https://doi.org/10.1016/j.jval.2013.04.014>