

The Evaluation of Motivational Interviews Influence for The Medication Adherence of Chronic Disease: A Systematic Review

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Abstract: Chronic disease is a prolonged illness and rarely heals. Although not all chronic diseases are life-threatening, it will create an economic burden for individuals, families, and society as a whole. Long-term care and rehabilitation is needed in chronic diseases, therefore awareness to adhere the medication is necessary to maintain the condition and improve the health status of patients with chronic diseases. Motivational Interviewing (MI) is one form of cognitive therapy in the form of individual-focused counseling techniques designed to help individuals explore and overcome ambivalence in changing their behavior. The objective of this study is to conduct a systematic review of recent studies using randomized controlled trials, the effect of motivational interviews on medication adherence in patients with chronic disease. The reviewed articles that were identified through database searches: Sage, Pro Quest, Springer links, Science Direct, and Ebso Host. The year search limit used was 7 years (2010 -2017). The search results obtained 8 articles that met the criteria. This systematic review generally recommends psychological interventions: motivational interviews in improving medication adherence in patients with chronic disease. However, further research needs to be done by using RCTs that focus on one chronic disease so that the effectiveness of the intervention is known. This is due to a variety of factors that can promote medication adherence to any disease, especially chronic disease.

1 BACKGROUND

Chronic disease is a serious health problem and the biggest cause of death in the world. In 2008, chronic disease caused deaths in 36 million people worldwide or equivalent to 36% of deaths in the world (WHO, 2013). Based on Riskesdas findings in 2013, chronic disease is the top ten cause of death in Indonesia (Ministry of Health, 2013). Mattson (in Bradford, 2002) explains that chronic disease is a long-term and lethal disease, and a disease associated with damage or decline in physical and mental function. Chronic disease is a long-standing disorder or disease (eg month or year), for example hypertension, diabetes mellitus, leprosy, epilepsy, tuberculosis, AIDS, leukemia, and so on. In order for the healing process of patients suffering from chronic disease to materialize rapidly, cooperation between patients, families of patients and health care providers must go well.

Associated with the treatment process, many problems occur especially in chronic diseases such

as physiological problems caused by long-term use of drugs, can cause side effects of organ damage such as liver, kidney or other organs. In addition to physiological problems, psychological problems can also occur that the emergence of feelings of distress in the patient. This is because patients are required to conduct regular and continuous treatment programs and take medication every day throughout their lives.

Various other side effects may also arise, which are caused by treatment programs or drugs consumed. In addition, problems can also arise in terms of family or community environment. Often, families or societies are less likely to accept the patient's condition when diagnosed with a chronic disease. The various problems described above are the causes of the tendency of patients with chronic disease not to conduct treatment process in accordance with the suggested by the medical team, so in the end decide to stop taking medication or stop taking the drug (Lailatusifah, 2012). According to some previous studies on Schaffer et al (2004),

Malbasa et al (2007), Hayes et al (2009) showed that in most patients with chronic diseases, non-adherence to treatment was more than 50%, even in Jarbose (2002) states that patients who are not adherent will eventually be followed by the termination of patients for medication.

Motivational Interview (MI) is one of counseling techniques that aims to encourage individuals to explore and find reasons in themselves that have never thought to change his behavior (Notoatmodjo, 2010). Motivational interview encourages individuals to create agendas and goals based on their own desires in achieving a goal (Lakhanpal et al., 2007). The application of MI has been performed on a number of areas of behavior change. The research conducted by Solomon et al (2010), suggests that motivational interviews as interventions prove to be good results in HIV cases, reduce risk factors and substance abuse and improve medication adherence in HIV patients.

Implementation of motivational interviews is expected to improve patient behavior in medication adherence, as in this case individual awareness is instilled to adhere to the principle of medication based on his/her own desire to recover. Various interventions have been made to improve medication adherence in patients with chronic disease. One of them is the provision of motivational interview interventions. Motivational interview as one of the interventions is considered as one effective way to cultivate and develop motivation in individuals based on their own beliefs and desires.

2 METHODS

The search strategy for English literature relevant to this topic was taken through several major databases such as ProQuest, Scencedirect, Spinger link, Sagepub, and EbscoHost by entering keywords that matched the titles taken: Motivational Interview, Medication Adherence, and Chronic Disease. The year limit used was 7 years (2010) - 2017). Full text and abstract articles were reviewed to determine the literature that fitted the inclusion criteria.

The inclusion criteria in this article were: Interventions of motivational interview using modification or without modification, and in patients with chronic (infectious or non-infectious) diseases, aged over 20 years. Articles were excluded if the target population focuses on children or adolescents. Search results with keywords created based on these criteria were obtained from eight selected journal articles from 40 journal articles found. The article

used as a sample was an article that used a Randomized Control Trial.

3 RESULTS

Eight journals have been collected, reviewed and assessed to obtain results. The eight journals reviewed by using a randomized controlled trial study. Eight journals examined the effects of motivational interviews on different types of chronic diseases, among others: HIV, CVD, hypertension, osteoporosis, dialysis patients, and cardiovascular disease. Seven of the eight articles reviewed showed a significant effect of medication adherence proved statistically significant, comparing the delivery of MI interventions with standard room treatments.

Boveda et al (2015), in his article showed no significant differences in both groups in terms of total cholesterol, LDL-cholesterol and triglyceride levels, but caused a reduction in all lipid parameters, among others, the risk of heart disease, weight loss, adherence against the Mediterranean diet and medication adherence. The medication adherence assessment in this study used the Haynes-Sackett and Morisky-Green test, the implementation of MI in this study was performed by physicians who had received previous training. In contrast to research conducted by Solomon et al (2010) that MI can significantly improve medication adherence in patients with osteoporosis, where an MI session is performed by a nurse.

Boveda et al (2015) and Solomon et al (2010) in the article had similarities that the application of MI, done via phone and short-message-service for 12 months. Meanwhile, research conducted by Garcı et al (2014) on the effects of MI in improving the adherence and wellbeing of dialysis patients showed that MI as a psychological intervention was significantly able to improve medication adherence (Morisky-Green test), decreased anxiety and depression, also increased HRQL.

The MI intervention in this study was conducted for 6 months by a psychologist, in which the patient was asked to attend each counseling session.

Torres et al (2015) in the 9-month study, MI interventions conducted collaboratively by doctors and nurses, showed a significant effect ($p < 0.001$) on improved adherence treatment in elderly with chronic illness, in which most of the respondents were women with higher education. This was in line with the results of the McDonnell et al (2011) study that MI might serve as an intervention by nurses in promoting adherence to HIV-positive women in

taking antiretroviral drugs, risk reduction behaviors, and improving quality of life. In addition, Mehdi et al (2016) in his study of patients with heart disease undergoing Arter Bypass Surgery, that MI with a combination of educational short-message-service might improve medication adherence, improved quality of life, and decreased mortality. Drug adherence was measured in the article using Medication Adherence Rating Scale (MARS), quality of life with Short Form-36, and survival status following client circumstances for 18 months after Coronary Artery By Pass (CABG).

The influence of motivational interviews on improving medication adherence in patients with hypertension was found in two articles: Huang et al (2014) and Hedegaard et al (2015), in his study of the effects of MI interventions by pharmacists in patients with hypertension (HT) significant on treatment adherence for the intervention group with a decrease in blood pressure where $p < 0.05$ (Huang et al., 2014). The adherence enhancement resulting from MI intervention in HT patients was also found by Hedegaard et al (2015), but did not have a significant effect on the decrease in blood pressure and secondary outcome. A study conducted by Hedegaard et al (2015), MI interventions performed by nurses through an interview session followed by a six-month telephone sessions.

4 DISCUSSION AND TECHNO

This systematic review explains the effect of motivational interview intervention (MI) on patient's medication adherence with various chronic diseases. Based on the eight journals reviewed, seven journals were obtained to have a significant impact on improved medication adherence, in terms of taking medication, diet, and regularity in dialysis. While one other journal showed no significant direct differences between the two groups, but indirectly led to lipid changes that reduced the risk of heart disease, adherence to diet, and improve adherence to treatment. The provision of interventions was undertaken in all eight reviewed journals, having a good diversity of the types of chronic disease suffered, MI implementation techniques, combinations made on MI, the intervention giver, and intervening intervals. So, differences in results obtained were allowed.

Meeting the basic needs of the patient especially in terms of psychology is necessary for success in treatment, especially in the treatment of chronic diseases. Noncompliance of the treatment by the

patient can cause enormous negative effects. Based on some previous studies, such as Schaffer & Tian's (2004), Malbasa et al. (2007), Hayes et al (2010), showed that in many chronic diseases patients who did not adhere to treatment were more than 50%, even in the Jarbose (2002) study suggesting that non-adherent patients would eventually be followed by treatment termination. Some of the effects of noncompliance with treatment in terms of consuming drugs are explained by Hayes et al., 2010, namely: the occurrence of side effects of drugs that may endanger the health of patients, the swelling of medical expenses and hospitals. In addition, patients can also experience resistance to certain drugs. There are some drugs that when stopped before the prescribed time limit may result in having to repeat the treatment program back from the beginning. In HIV/AIDS, noncompliance can lead to unresolved viral suppression, ongoing infection, the emergence of virus-resistant strains, and limited treatment options in the future.

Other examples of non-adherence to TB treatment, non-adherence to take medication that should be done sequentially for six months may cause the tuberculosis patient to repeat the treatment again from the beginning even if the patient has been drinking for 1-2 consecutive weeks. This of course will take more time and cost and the healing of the patient becomes obstructed / longer. In the case of hypertension, medication adherence will also reduce the risk of death, the risk of damage to important organs and the risk of heart disease. Whereas, in cases of chronic renal failure, non-compliance of patients in the treatment in this case dialysis action and adherence to the diet can cause death.

Motivational interviews are one of the client-centered interventions with a psychological approach, aimed at improving readiness in changing behavior by helping clients explore and overcome their imbalance of feelings (Miller, R & Rollnick, 2012). Doctors in this case do maintenance through the process of interviewing with clients so that it can make clients relax. Implementation of clinical MI interventions makes it easier to understand the psychological condition and experience of the client so that doctors or other medical personnel can motivate clients to gradually realize and desire in making behavioral changes, in this case the behavior of adherence to medication.

Recent meta-analysis showed that motivational interviews were equivalent or better than other treatments such as cognitive behavioral therapy (CBT) or pharmacotherapy, and superior placebo and non-treatment controls to reduce alcohol and

drug use in adults and adolescents (Riper et al., 2013). Motivational interviews also proved efficacious in other health conditions, such as smoking cessation behavior, reduced risky sexual behavior, improved adherence to drugs and diabetes management. The study supported the implementation of motivational interviews for HIV care, such as improving adherence to antiretroviral therapy and reducing drug use among HIV positive men and women (Dilorio et al., 2011). Thus, motivational interviews are an important therapeutic technique that is widely applied in health settings to clients in motivating to change.

Behavior adherence in treatment is a major aspect in the treatment of chronic diseases, so this becomes the focus in efforts to achieve patient health status. This behavior can be seen from the extent to which patients follow or adhere to treatment plans agreed by patients and medical professionals to produce targeted therapeutic therapy (Frain et al., 2009). Nurses as medical professionals may intervene MI, as it is a form of cognitive therapy. Therefore, nurses are expected to intervene with their therapeutic communication skills, to motivate clients with chronic disease, in changing their behavior especially in behavioral adherence to medication. The assessment of medication adherence may use some MMAS tools (Morisky Medication Adherence Scale), in Morisky et al., 2009, CSA (Single Continuous Interval Treatment Availability), MPR (Medication Possession Ratio) and CMG (Continuous Multiple Interval Medication Gaps), developed by Krousel-Wood et al., 2009, and PDC (Proportion of Days Covered) by Choudhry et al., 2009.

5 CONCLUSIONS

Motivational interviews have been conducted in several studies in various countries. One of them aims to improve treatment adherence in patients with chronic disease. Most studies showed that MI intervention had a significant effect on adherence improvement especially in patients with chronic disease. But in practice most were still done not by nurses but other professionals such as: psychologists, doctors and even pharmacists. Therefore, nurses are expected to intervene MI as an effort to perform nurse function as a counselor by utilizing therapeutic communication skills possessed.

In the future it is expected that more research will be conducted to find out the effectiveness of

motivational interview interventions conducted by nurses, especially in the development of nursing science including bio, psycho, socio and spiritual aspects. RCT studies should also continue to be done to determine the actual effects and avoid for possible bias in the study.

REFERENCES

- Boveda-Fontán, J., Barragán-Brun, N., Campiñez-navarro, M., Torres, L. Á. P., Bosch-fontcuberta, JM, Martín-Alvarez R., ... Estudio, CG (2015). Effectiveness of motivational interviewing in Patients with dyslipidemia: a cluster randomized trial, 1-16. <https://doi.org/10.1186/s12875-015-0370-2>
- Carrolla, KM, Balla, SA, Nicha, C., Martino, S., Frankfortera, TL, Farentinosb, C., ... B, L. (2011). Using Motivational interviewing to improve treatment engagement and outcome in individuals seeking treatment for substance abuse: A multisite effectiveness study, 20 (3), 273-283. <https://doi.org/10.1080/09540120701593489>.
- Choudhry, NK, shrank, WH, Levin, RL, Lee, JL, Jan, SA, Brookhart, MA, & Solomon, DH (2009). Measuring adherence to multiple related concurrent medications. *American Journal of Managed Care*, 15 (7), 457-464. <https://doi.org/10.1021/ac901991x>
- Frain, MP, Bishop, M., Tschopp, MK, Ferrin, MJ, & Frain, J. (2009). Adherence to medical regimens: Understanding the effects of cognitive appraisal, quality of life, and perceived family resiliency. *Rehabilitation Counseling Bulletin*, 52 (4), 237-250. <https://doi.org/10.1177/0034355209333334>
- Garci, H., Olga, P., & Rafael, C. (2014). Motivational Interviewing Promotes adherence and Improves Wellbeing in Pre-Dialysis Patients with Advanced Chronic Kidney Disease, 103-115. <https://doi.org/10.1007/s10880-013-9383-y>
- Hayes, TL (2010). Make a Big Difference. *J Aging Health*, 21 (4), 567-580. <https://doi.org/10.1177/0898264309332836>.Medi cation
- Hedegaard, U., Kjeldsen, LJ, Pottegård, A., Henriksen, JE, Lambrechtsen, J., Hangaard, J., & Hallas, J. (2015). Improving medication adherence in Patients with hypertension: a randomized trial. *The American Journal of Medicine*. <https://doi.org/10.1016/j.amjmed.2015.08.011>

- Krousel-Wood, M., Islam, T., Webber, LS, Re, RN, Morisky, DE, & Muntner, P. (2009). New medication adherence scale versus pharmacy fill rates in seniors with hypertension. *American Journal of Managed Care*, 15 (1), 59-66. <https://doi.org/11024> [pii]
- Ma, C., Zhou, Y., Zhou, W., & Huang, C. (2014). Patient Education and Counseling Evaluation of the effect of motivational interviewing counseling on hypertension care. *Patient Education and Counseling*, 95 (2), 231-237. <https://doi.org/10.1016/j.pec.2014.01.011>
- McDonnell, M., Colleen, H., Kelley, ME, & Resnicow, K. (2011). Group Motivational Interviewing to Promote adherence to antiretroviral medications and Risk Reduction Behaviors in HIV-Infected Women, 885-896. <https://doi.org/10.1007/s10461-010-9865-y>
- Mehdi, CL, Amir, Y., Malm, D., Yates, F., Webb, TL, & Brostro, A. (2016). Can a multifaceted Intervention Motivational Interviewing Including Improve Medication adherence, Quality of Life, and Mortality Rates in Older Patients Undergoing Coronary Artery Bypass Surgery? A Multicenter, Randomized Controlled Trial with 18-Mont. <https://doi.org/10.1007/s40266-016-0429-3>
- Miller, R. W., & Rollnick, S. (2012). *Motivational Interviewing Help People Change* (third). New York: The Guilford Press.
- Riper, H., Andersson, G., Hunter, SB, Wit, J. de, Berking, M., & Cuijpers, P. (2013). Treatment of comorbid alcohol use disorders and depression with cognitive-behavioral therapy and motivational interviewing: a meta-analysis, 394-406. <https://doi.org/10.1111/add.12441>
- Schaffer, SD, & Tian, L. (2004). Promoting adherence: Effects of theory-based asthma education. *Clinical Nursing Research*, 13 (1), 69-89. <https://doi.org/10.1177/1054773803259300>
- Solomon, DH, Gleeson, T., Iversen, M., & Avorn, J. (2010). A blinded randomized controlled trial of motivational interviewing to improve adherence with osteoporosis medications: design of the OPTIMA trial, 137-144. <https://doi.org/10.1007/s00198-009-0951-9>
- Torres, D., Pulido, L., Ruiz, R., Pe, LA, Ferna, JA, Larumbe, MC, & Rolda, A. (2015). Patient Education and Counseling Effectiveness of motivational interviewing to improve therapeutic adherence in Patients over 65 years old with chronic diseases: A cluster randomized clinical trial in primary care, 98, 977-983. <https://doi.org/10.1016/j.pec.2015.03.008>