Research Article

Landing on the MARS!!!

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ABSTRACT

Background: Inadequate adherence to prescribed medication severely affects the efficacy of the treatment and acts as an important modifier of health system effectiveness[1]. It has significant negative economic and clinical effects which are manifested by frequent relapses and re-hospitalisations.
Aims: By using a validated and reliable tool to assess medication adherence, we were aiming to identify the compliance level among our Psychiatric group of patients, and explore the reasons and possible causes of non-adherence. We also aim to identify the diagnoses and medicines which are mostly linked to non-adherence.
Method: We used the Medication Adherence Rating Scale (MARS) and a patient questionnaire to obtain information about client's adherence and their attitude towards psychotropic medications. We used prospective consecutive sampling and included all clients seen in the outpatient clinic during the 2 months duration of the study. The sample included clients aged 16 years and above.
Results & Clinical Implications: Results indicate a significant gap between subjective and objective rates of adherence. They also indicate that patients' attitudes towards their psychotropic medications are quite negative. Taking into account and addressing issues pertaining to side effects are very important to improve the level of adherence. Results also show that most of our clients are only partially adherent to psychotropic medication.

Introduction:

Non adherence to medication is a significant problem for client group in Psychiatry. Between a third and half of medicines that are prescribed for long term conditions are not used as recommended[2, 3]. In the case of Schizophrenia, studies reveal that almost 76% of the sufferers become non-compliant to the medication within the first 18 months of treatment [4].

Non-adherence has consequences for both clients and the Health Care System. If the issues of non-adherence are better identified and addressed actively, it has the potential of improving the mental health of our clients which will reduce the burden of cost to mental health resources. It is estimated that unused or unwanted medications cost the NHS about £300 million every year. This does not include indirect costs which result from the increased likelihood of hospitalization and complications associated with non-adherence[5].

The WHO identified non-adherence as "a worldwide problem of striking magnitude". This problem is not only just linked with our psychiatric client groups, but also is prevalent with most chronic physical conditions. It has been reported that adherence to medications significantly drop after six months of treatment[6].

In broad term compliance is defined as the extent to which the patient is following the medical advice. Adherence on the other hand is defined as the behavior of the clients towards medical advice and their concordance with the treatment plan. Adherence appears to be a more active process in which patients accept and understand the need of their treatment through their own free will and portray their understanding with either a positive or negative attitude towards their medications[7]

Unfortunately there is no agreed consensal standard to define non adherence. Trials suggest a rate of >50% compliance as adequate adherence while other researchers believe it should be at least >95%. As per White Paper of DOH (2010), it has been recommended that clinicians have the responsibility to identify such issues and improve collaborative relationships among multidisciplinary teams to deliver a better clinical and cost effective service[8].

Methods:

Sampling:

Our cohort included a prospective consecutive sample of 179 patients. The study was conducted in North Essex Partnership NHS Trust which provides general adult services for a catchment area of approximately 147,000 in Tendring area. All these clients were seen at the out patient's clinic at Clacton & District Hospital. Informed consent was taken as per recommendation of local clinical governance team. The study was conducted during a 2 month period from October to November in 2010. No patient was excluded from the study. Sample consists of clients who were aged 16years and above.

Tools Used:

All the clients were asked questions using a standard questionnaire and MARS (Medication Adherence Rating Scale). MARS was developed by Thompson et al in 1999 as a quick

self-reported measure of adherence mainly around psychiatric clients. It was mainly devised from a 30 item Drug Attitude Inventory (DAI) and a 4 item Morisky Medication Adherence Questionnaire (MAQ). The validity and reliability of MARS has been established by Thompson et al and then Fialko et al in 2008 in a large study and has been reported to be adequate[9,10].

The patient questionnaire directly asked clients about their current medications and dosage regimens. It also enquired about various factors leading to non-compliance. It included factors like whether the medication makes them feeling suicidal, causes weight gain, makes them aggressive, causes sleep disturbances, causes sexual side effects, the form and size of tablets, stigma and family pressure, their personal belief about medication or do they feel that they become non adherent because as a direct effect and consequence of the illness.

Medication Adherence Rating Scale focuses both on adherence as well as the patient's attitudes towards medications. It includes questions about how frequently they forget to take medications or are they careless about taking their medications. It also asks them if they stop taking their medication do they feel well or more unwell. Other aspects include whether they only take medicines when they are sick and do they believe that it is un-natural for their thoughts to be controlled by medications. It also asks about the effect of medication on them, such as; are they able to think clearly, or do they feel like a zombie on them?, or are they tired all the time?. It also checks their belief that if they remain compliant to medication, will it prevent them from getting sick again.

Results:

In total 179 clients were seen in the outpatient clinic during the period of two months. Out of those (54%, n=97) were females whereas nearly half (46%, n=82) were males. Age of the clients ranged from 18 years to 93 years. The mean age of the client group was 55; mode 41 and median was 69.5.

The diagnosis profile was quite varied. As far as the primary diagnosis is concerned, the majority (n=144) of service users were given a primary diagnosis using the ICD 10 criteria. Mood disorders were the most common primary diagnosis whereas personality disorder and anxiety were the most common secondary diagnosis. Table 1 show the number and percentage of the service users who presented with the most common diagnosed conditions.

Subjectively 160 (89%) patients reported that they were compliant with medications whereas 19(11%) patients admitted that they have not been adherent to medications. Out of those who said that they were non-adherent, 8 were suffering from Mood disorders, 2 had schizoaffective disorder, 3 had psychotic illness, 3 had organic brain disorder, 2 clients had personality disorder, whereas 1 client had anxiety and 1 had neurological illness.

Table 1: List of primary and Secondary diagnosis

Diagnosis	Primary	Secondary
Mood Disorders	72 (50%)	07 (26.92%)
Psychotic illness	25 (17.36%)	01 (3.85%)
Anxiety and PD	13 (9%)	13 (50%)
Dementia	24 (16.7%)	02 (7.69%)
Neurological disorder	07 (4.86%)	01 (3.85%)
Drugs related illness	02 (1.39%)	02 (7.69%)
Eating disorder	01 (0.69%)	00 (0.0%)

Prescription rate varied between different types of psychotropic medications. Antipsychotics were the most prescribed medication in our cohort. Table 2 shows data of each individual category.

Table 2: Number and percentage of individual medication category prescribed

Medication category	N=number of prescribed meds	% of total prescriptions
Antipsychotics	100	44%
Antidepressants	72	31%
Mood Stabilisers	21	09%
Anxiolytics	21	09%
ACH Inhibitors	12	05%
Hypnotics	04	02%

Less than half (39%, n=69) of service users had only one type of psychotropic medication whereas the majority (58%, n=104) of patients were on more than one psychotropic medication. A very small number of clients (3%, n=6) were not using any medications at all. When explored further it was revealed that almost two third of the antidepressant prescriptions comprised of SSRI's (67%, n=55), about one fourth of SNRI (24%, n=21), a small proportion (6%, n=5) of NARI's and very few (3%, n=3) were given tricyclic antidepressants. Similarly in antipsychotics, 75% of patients were on atypical and 25% were prescribed typical antipsychotics.

Factors leading to non-adherence:

Below is the graphical representation of what clients perceived as the major factors leading to the non adherence to the medication. Weight gain, illness effect, stigma and personal belief appear to be the major factors as displayed in Chart 1.

Attitude towards Medications:

The overall Service users' attitude towards medication did not appear to be particularly good. They mainly complained of getting tired and forgetting to take medication. Below in Chart 2 is the graphical representation of what overall attitude they had expressed towards psychotropic medications.

Chart 1: Number of responses for each individual factor leading to non-adherence:
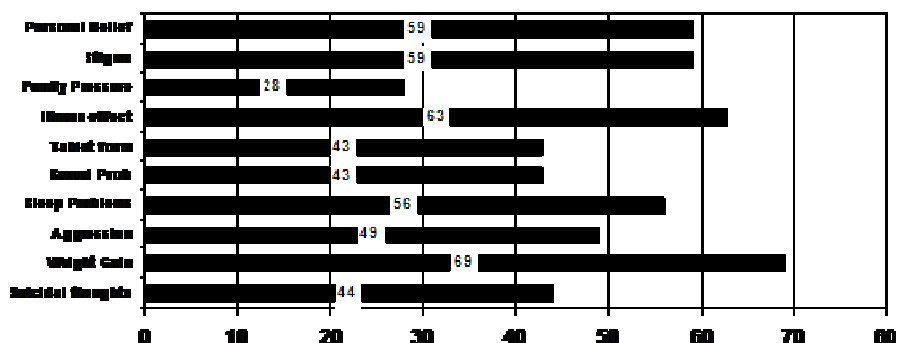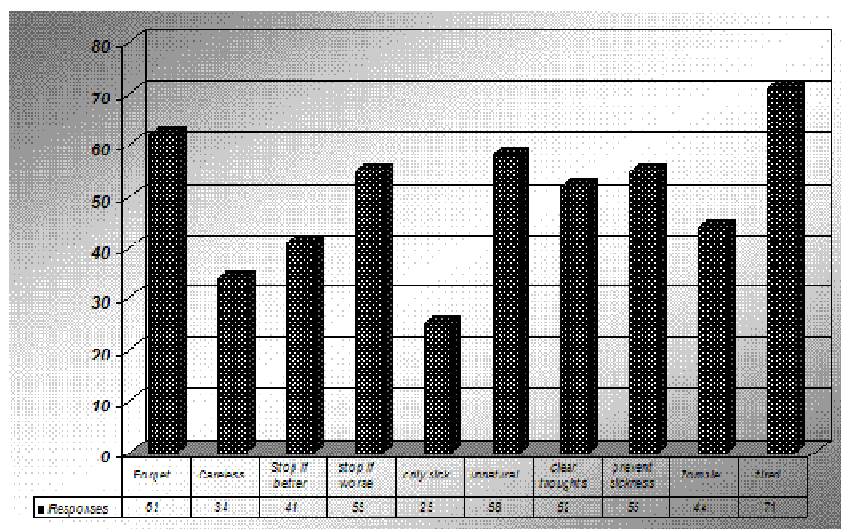

Chart 2: Number of responses for each factor indicating attitude towards medication

As far as overall MARS score is concerned, the majority of patients (63%, n=110) scored >6 and about one third of patients (37%, n=63) scored <6. A score of less than 6 is generally considered as a poor level of adherence which means that almost one third of our client group does not comply with medications.

Discussion:

The aim of our study was to highlight the importance of the factors which often lead to non-adherence to medications and to explore patients' attitudes towards medications. Results are indicating that the problem of non-adherence is much wider and deeper in our clients group. There is a significant gap in between subjective and objective rate of adherence. However we should be mindful that adherence appears to be more of a continuum rather than a fixed entity e.g. some patients can be more adherent than others but still have inadequate adherence and hence arises the concept of partial adherence. It is evident from the results that patients' attitudes were not encouragingly positive towards psychotropic medications.

Human beings are born potentially non-compliant. It is our tendency to crave and indulge in things which we know might not be good for our health e.g. eating non healthy food, alcohol and substance misuse. We have better compliance to issues which give us the immediate reward like pain relief or euphoria from illicit drugs where as because of lack of this immediate reward, our compliance gradually becomes erratic. Compliance and adherence appears to be a learnt phenomenon which needs to be nurtured throughout our life.

Manifestations of non-adherence:

The consequences of non-adherence are mainly manifested and expressed through clinical and economic indicators. Clinically it means an increase in the rate of relapse and re-hospitalisation. As per one study non-adherent patients have about a 3.7 times high risk of relapse within 6 months to 2 years as compared to patients who are adherent[11]. In US it was estimated that at least 23% of admissions to nursing homes were happening due to non adherence which meant a cost of $31.3 billion/380,000 admissions per year[12]. Similarly 10% of admissions happened for the same reason costing the economy an amount of $15.2

billion/3.5 million patients[13,14]. Figures in UK are also not much different where the cost of prescriptions issued in 2007-08 was estimated to be £8.1 billion and it was highlighted that £4.0 billion out of that amount was not used properly[15]. Similarly in terms of hospitalization, about 4% admissions happen every year happen because of non-adherenceThe total cost of hospitalization in 2007 was estimated to be £16.4 billion and it was suggested that non-adherence had a burden of costs in the region of £36-196 million[17].

From a clinical aspect it has been suggested that non-adherence causes about 125,000 deaths just in the US every yearMet analysis has suggested significant statistical association between non-adherence and causing depression in certain chronic physical conditions e.g. Diabetes[19].

Dimensional Phenomenon?

We need to be aware that adherence is a multidimensional and a multifaceted phenomenon and is better understood in dimensional rather than categorical terms. It has been widely accepted that if concordance is the process, then adherence will be the ultimate outcome. This was highlighted by WHO guidelines using following diagram:

Chart 3: WHO diagram of the five dimension of adherence:

Therefore any strategy developed to address the issue of non-adherence should be able to consider all these five dimensions; otherwise it will be less likely to have any chance of success.

Measures to improve Compliance:

All the known as clinical and economic indicators suggest that non-adherence issue needs significant attention and special measures which ought to be taken in order to avoid complications. There are already some running campaigns in other countries in order to improve adherence and we need to learn from their experiences such as the National Medication Adherence Campaign in US (March 2011). The campaign is basically a research-based public education effort targeting

patients with chronic conditions, their family caregivers, and health care professionals[20].

Levine (1998) demonstrated that the following steps may help in increasing adherence:

- To appropriately asses the patient's knowledge and understanding about the disease process and the need for treatment and to address those issues if there is some dysfunctional belief.
- To link the taking of medication with other daily routines of the life
- To use aids to assist medication adherence e.g. MEMS, ePills, Calendar or Dossette box
- To simplify the dosage regimen
- Flexible Health care team who is willing to support
- Addressing current Psychosocial and environmental issues which might hinder the adherence[21.]

It is extremely important for the clinician to take time to discuss in detail with their patients all the possible side effects and indications of the prescribed medications. Unfortunately clinicians may not be able to predict the possibility of having side effects but can certainly educate patients about their psychopathology, indication and rationale for the medication and make them realise how important it is for them to remain adherent to medication. Health education is considered equally effective as compared to any sophisticated adherence therapy and should be used routinely[22].Clinicians also have very important role to play in simplifying the dosage regimen and emphasise to the patients that "Medications don't work in patients who don't take them"[23].

Various studies have tried to estimate the efficacy of a single factor and the multi factor approaches to improve adherence [24]. Studies have showed proven efficacy for education in self management[25,26], pharmacy management programmes[27,28], nursing, pharmacy and other non medical health professional intervention protocols[29,30], counselling[31,32], behavioural interventions[33,34] and follow up[35,36]. However multi factor approaches have been found to be more effective than single factor approaches[,38]Therefore it has been suggested that we need to address all the five dimensions of adherence (Chart 3) with multiple interventions to improve the adherence in our patients.

One factor potentially of concern leading to non-adherence is the possibility of the current overt or covert misuse of alcohol, illicit substances and over the counter available medications. This issue understandably can lead to partial or complete non adherence as well as worsening of existing psychiatric conditions. Therefore it needs to be explored further in future research projects.

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Competing Interests

None declared

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