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Narrative review

The wit and wisdom of Wilbert (Bill) Fordyce (1923 – 2009)

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Contents

Aphorism – A terse statement embodying a general truth; an astute observation.

1. Background

Wilbert (Bill) Fordyce was a pioneer in the field of the treatment for chronic pain. He was the first to conceptualize and use behavioral theory as a basis for a treatment program for chronic pain and other symptoms. This idea and how to conceptualize it in a practical manner were published in 1976 in a landmark book "Behavioral Methods in Chronic Pain and Illness" which has recently been re-issued by the International Association for the Study of Pain Press with comments for each chapter by leading psychologists and physicians in the field of pain research and treatment, many of whom worked with or otherwise knew Bill. The treatment that he established with an inter-disciplinary team at the University of Washington in the 70s–90s became the model for the world [1,2].

Much of what I learned from Bill Fordyce that struck a positive chord was his presentation of his ideas expressed as aphorisms which were a compendium of simple rules about pain, pain behavior and pain treatment. They are very useful in describing patients and the chronic pain state. They come to mind repeatedly when I encounter difficult patients and the aphorisms help to explain to patients and therapists why some treatments they might think inappropriate can actually help significantly.

2. "Those with something better to do, don't hurt so much."

Demographic data show that there is a strong association between empty lives and chronic pain. The landmark articles of

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Eriksen [3] analyzing information from the Danish Health Registry showed that females with low education, poor economy, living alone were highly represented in the group endorsing chronic pain. Since, there has been much data to support these observations. One could argue that this is a chicken and egg situation that has not yet been fully explained. Is it the chronic pain that has changed their lives or is it their lives that have made them more susceptible to disability and more suffering? Looking at professional athletes in contact sports exemplifies Bill's idea from a positive position. These high paid athletes generally continue playing with acute and chronic pain conditions that would make many of us stop most activity including work. Think of taking a "hit" from a football or ice hockey player when standing at a bus stop. How would you react? The athletes ignore these painful experiences and continue with the game. The influence of chronic pain is therefore greater when there are fewer distractions in one's life i.e. an interesting job, children, social and home responsibilities. This is how the nervous system works. The descending inhibition to the spinal cord is much stronger with greater input at all levels and those with empty lives do not have a high level of descending inhibition driven by a focus on a more interesting or demanding environment. See Section 12: "One violin plays and that patient hears the whole string section".

3. "It's only pain."

This is the basis for Acceptance and Commitment Therapy (ACT) [4] and Bill was using this long before ACT was proposed and became a popular treatment. Bill would say this to patients, usually when they had begun a pain rehabilitation program or after completing it when they complained that they still had pain. The program had discussed chronic pain as an aberration in the sensory system that was not the same as the protective process in acute pain. All possible avenues of treatment for the "bio" aspect of the problem had been tried without success before the patients began pain rehabilitation. Tuning out pain was possible if the meaning and importance were put into perspective. Activity was one way of activating the pain inhibition system to decrease the conscious experience of pain. See also Section 4: "Hurt and harm are not synonyms". The response to "It's only pain" was variable – shock, sometimes anger but often the patients would suddenly recognize how true it was. The background pain signals were only noise and they could continue with their lives as the background noise varied but it didn't necessarily affect their daily activities very much, especially when those activities were a part of a quota driven system in the pain rehabilitation program [1].

4. "Hurt and harm are not synonyms."

Or, to state it differently, "hurt does not equal harm" as Bill would also paraphrase it. In the behaviorally based pain rehabilitation program, patients were taught the difference between pain as a warning signal as in acute injury and the changes that can occur after injury (or appear spontaneously) in the somatosensory system to produce chronic pain that is not a signal for "impending or actual tissue damage" (IASP pain definition [5]). The interpretation that chronic pain is a warning signal creates concern for patients and inhibits their activities through fear that they are actually aggravating some ongoing injury to a vital part of their body. This is explained in part by the changes in connectivity of the Default Mode Network where the mind in neutral changes to focus on the pain matrix instead of other areas [6]. Many patients we encountered with low back or neck pain expressed the idea that too much activity/too much pain would lead to their being paralyzed with permanent damage to their spinal cords! Typical catastrophizing [7]. Unfortunately, this idea had been reinforced by previous professional contacts they had because of their pain. Too many patients are told "If it hurts, don't do it!" See Section 18: "Superstitious over-guarding".

5. "All chronic pain has a behavioral component."

Bill Fordyce was the first to use behavioral methods to treat pain and illness behavior in patients with chronic pain [1]. Based on the theories and research of Skinner [8], we are all influenced by our immediate environment and there are positive and negative reinforcers in the environment that shape our behavior, including the response to pain. Think of young children and their reaction after falling in the playground. If their parents seem concerned and solicitous, there is a lot of crying and pain behavior. If their parents just smile, blow on or kiss the hand or knee that was hurt and say everything is fine, the children also smile and go on playing. The parents' responses can be the positive or negative reinforcers that shape the children's behavior in response to a minor injury. We respond to pain signals based on past experience and learning. Often, this process is counterproductive and misinterpreting the signals can lead to unnecessary disability.

6. "The complaint of pain is merely social commentary the meaning of which is yet to be determined."

"I hurt" is pain behavior and is not a good indication in chronic pain of what is actually happening in the body. It is, however, a signal that the individual is suffering. We have a lot of information from animal research on various pain states, almost all acute pain models, explaining neural and biochemical reactions in the somatosensory system in response to various injuries or pain stimuli but applying this information to the human condition in chronic pain is difficult. NRS or VAS scores are also pain behavior and are a better indication of suffering than of nociception [9]. Therefore, when a person says "I hurt", we need to be careful how we interpret the statement and in the case of chronic pain, it is often very difficult to identify a significant pathological explanation.

7. "Pain is transdermal. It depends on events inside and outside the body."

Bill started saying this shortly after transdermal fentanyl patches came on the market. It is similar to his statement that "All pain has a behavioral component". The pain experience results from the interpretation of signals from the somatosensory system based on past experience and what is going on in the person's immediate environment. Modulation of the incoming information at a spinal level can either increase or decrease the signal. This modulation also occurs at various central nervous system sites up to and including the cerebral cortex [10]. Again, think of the difference between being knocked down during a football match as a player and having the same contact and falling while walking on the street.

8. "Young men have too many hormones to have chronic pain."

Bill's meaning was that young men are programmed to be active, to be forming relationships, establishing a career, using their bodies. One can speculate that this is in the male genes which have evolved in a highly specialized way in hunter/gatherer societies. Testosterone may be protective against pain [11]. Looking a bit more closely and taking Bill's aphorism literally, there is a significant literature around testosterone and pain and the fact that high testosterone levels influence top down control over nociceptive input at the spinal level [12]. From the opiate/pain literature, there is also data to show there is an association

between low testosterone levels and pain, depression and anxiety, all improved by administration of testosterone [13].

9. "Patients will present with the symptoms to satisfy any new diagnosis that doctors come up with."

The medical system needs diagnoses and these are often the basis for a specific treatment. Medical training has made not finding a diagnosis an indication of failure on the doctor's (physiotherapist's, occupational therapist's, nurse's, etc.) part. Therefore, new diagnoses for various pain problems come regularly but often these are discarded or are modified or fall into disuse. Examples are "railway spine" in 19th century England [14], repetitive strain syndrome as a major cause of work loss in Australia in the 1980s and then in England in the 1990s [15]. Since patients also want a biological diagnosis to explain their symptoms, they are quick to attach themselves to new ideas that can validate their suffering. The internet makes sure that this will continue, possibly with both positive and negative effects. Thinking about this aphorism strengthens the admonition to "treat the patient, not the diagnosis".

10. "Use it or lose it."

This obviously is not a Bill Fordyce original but he used this with almost all the patients coming into the pain rehabilitation program. Bill took his clues from first Bortz [16] and then later, Corcoran [17]. Trying to explain succinctly the behavioral aspects was not an idea that was easily accepted by some patients but using this training motto to explain why the exercise program was important was very successful. This principle is based on the longstanding evidence that not using any function of the body or mind will lead to a decrease in that function. The body is economical and will reduce resources in areas where they are not needed. This is not only true of musculoskeletal function but also cardiovascular, respiratory, memory, vision, hearing, sexual function and many others. See Section 11: "You are more disabled than the medical evidence would suggest."

11. "You are more disabled than the medical evidence would suggest."

Bill used this with patients during the team feedback with them and a family member. Coming with a family member, also interviewed by psychology was routinely a part of the multidisciplinary evaluation. Feedback was given by the team and the medical (bio) aspects were covered first. Along with "Use it or lose it" [16], "You are more disabled than the medical evidence would suggest" was a simple explanation that the pain rehabilitation program was designed to treat the disability that had occurred in most of the patients while they waited for "healing" after surgery or an injury or for appropriate medical treatment for their chronic pain. It was often difficult for the patient to grasp until they had been in the rehabilitation program for a time but their "significant other" often understood directly. The family member had witnessed the physical (and sometimes mental) decline that had occurred along with the chronic pain and often found it alarming. Patients often believed that just removing the pain would allow them to return to full activity despite the deconditioning secondary to them being stuck in a "find it and fix it" mentality.

12. "One violin plays and that patient hears the whole string section."

This is an excellent description of the effects of central sensitization [18]. There are many other terms for this process in the literature including "symptom preoccupation", "symptom amplification". It is as if the gain in the sensory system has been increased if we think of the pain system as similar to an audio system. It supports the idea that descending inhibition is not functioning well. We do have information from studies in various chronic pain states that conditioned pain modulation (CPM), previously known as diffuse noxious inhibitory controls (DNIC) is weak or absent. This can explain a part of the "symptom preoccupation". Sensory input at the spinal level and above is not modulated in a normal manner and this results in more attention to these aberrant sensations. Also, data on the research into the function of the Default Mode Network centrally helps to explain this [6].

13. "That patient listens to their body too much."

Many pain patients are so concerned about pain as a warning signal that they focus abnormally on any symptoms that might indicate worsening or are proof of cancer or something equally dangerous that might be causing the pain. See also Section 12: "One violin plays and that patient hears the whole string section."

14. "If you want to make a silk purse from a sow's ear, you need to start with a silk sow."

There is an English aphorism that says "You can't make a silk purse out of a sow's ear!" This implies that if you want to improve a situation, a state or condition, there has to be some possibility or potential for improvement. Bill wasn't as pessimistic about the possibilities of helping difficult patients as some. If he saw a glimmer of hope (a silk sow) then he was willing to try. One point Bill made using this idea was that patients, after the multidisciplinary evaluation, needed to have realistic goals for what they would do if they had less pain. They must also be willing to try a different non-"bio" approach to their problems. The corollary of this aphorism is that you can't help everybody and you need to choose those patients for treatment that best match your capabilities. You will be overwhelmed if you try to help everybody.

15. "Information is to behavior change as spaghetti is to bricks."

When Bill would say this to those involved with chronic pain treatment, everyone would look confused. His point was that spaghetti and bricks are very dissimilar. Trying to judge behavior change by asking the patient how they are doing can be misleading. If you ask patients if they are exercising more or taking fewer tablets they usually will say "yes" since they know that this is the answer you want to hear. In the pain rehabilitation program we, Bill included, routinely went to the gym to watch the patients exercise. They were also observed by the therapists, directly under supervision or indirectly. At daily rounds, all the staff would report on the patients' activities so we had good information about behavior change. The patients were also required to graph their activities and thus they and we had a visual proof of positive change. The therapists and the other patients were quick to note if these graphs were accurate or not. For most patients in the rehabilitation program, the reporting was accurate but human nature being what it is, some would try to look better than their actual performance. If not observed, the discrepancies could very well be much larger.

16. "That patient goes around holding their umbilical cord looking for a kind doctor to plug it in to."

This is a perfect description of the needy patient that feels they must have constant contact with a therapist for their emotional (and often social) support [19]. They have "learned helplessness"

and are very dependent [20]. The contact they crave can be with anyone in the pain team but those patients will take up as much time as possible when they have found a sympathetic therapist. They can never be better since that would mean losing their support system. One must be careful with these patients since they demand so much time and often don't improve significantly – one step forward, one step back is the rule. Limited, scheduled contact is necessary and a weaning process is needed so that they don't spend their lives with their umbilical cord attached to the pain clinic. If progress halts it is time to say "Sorry but I can't help you any more". This usually leads to progress in the right environment so that the patient can maintain contact with the support system and this desire can be used to advantage. As Bill would say, positive reinforcement if they improve, negative reinforcement i.e. less contact or no contact if they don't improve, can shape this behavior in a way to make the umbilical cord contact unnecessary.

17. "That man needs to go back and be born to different parents."

Bill would often say this about a patient he hadn't seen. He insisted that all patients for a multidisciplinary evaluation complete the Minnesota Multiphasic Personality Inventory (MMPI) questionnaire that was originally designed to detect psychopathology. Processing the questionnaire resulted in a graph [21]. Bill had been trained in his PhD studies on the MMPI and was an expert at interpretation. He would hold up the graph and usually have an accurate description of the patient's psychological makeup without seeing them. In this case, it often meant someone with lasting psychopathology related to their upbringing. It was usually a warning about maladaptive psychosocial mechanisms that had a strong influence on their chronic pain. It was not a deterrent to treatment, however, just a caution [22].

18. "That patient displays superstitious over-guarding."

This was Bill's description of "fear avoidance", "fear of movement", "kinesiophobia" [23]. He identified this as a major problem for many patients and devised a scheme for extinguishing it. One was his "speed walk". Many pain patients have strange walking gaits that are supposedly pain relieving but may actually cause new problems because of faulty body mechanics. Why should someone with neck pain need a cane and walk strangely? Bill reasoned that if you try to walk fast, it is impossible to limp. The speed walk was how to change unusual walking habits. Patients began at whatever speed level they could manage but the goal was to cover 50 m in 25 s by the end of the treatment program. Most of the patients loved this exercise and it became a competition which encouraged better participation. It resulted in spectators (the other patients) cheering on each speed walker. This effectively extinguished strange walking patterns. Johan Vlaeyen was a student with Bill for six months and then developed the fear-avoidance model from that experience using Bill's "superstitious over-guarding" as the basis for his theory and later extensive research that is still ongoing [24].

19. "A person cannot manifest two incompatible behaviors at the same time"

That is the basis for the "speed walk" as above. Fast walking and limping can't be done at the same time. This can be applied to other forms of exercise as well to extinguish strange motor behaviors that are part of pain behavior but have no real pain relieving value. Proper sitting, standing use of tools, etc. can be modified and changed by practicing normal body mechanics and this usually leads to decreased pain and increased productivity.

20. "All pain patients have learned the metric system"

When patients came to the pain rehabilitation program we needed a starting point for setting up quotas for their physical activities. They were instructed in the core activities and told to exercise "until pain, weakness or fatigue make you want to stop". If the activity involved counting repetitions, they invariably stopped with the number of repetitions ending in a 5 or a 0. It was obvious that this was not maximal effort and made us sure that by starting their quota at 75% of their baseline efforts we were not beginning at too high a level for their capabilities.

Conflict of interest

None declared.

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References

[1] Fordyce's behavioral methods for chronic pain and illness: republished with invited commentaries. IASP Press; 2014.
[2] Loeser JD, Wilbert E. Fordyce, PhD. 1923–2008. Pain 2010;148:1–2 [Obituary].
[3] Eriksen J, Sjøgren P. Epidemiological factors relating to long-term/chronic non-cancer pain in Denmark. Ugeskr Laeger 2006;168:1947–50.
[4] Hayes SC, Luoma JB, Bond FW, Masuda A, Lillis J. Acceptance and Commitment Therapy: model, processes and outcomes. Behav Res Ther 2006;44:1–25.
[5] Merskey H, Bogduk N. Classification of chronic pain. 2nd ed. IASP Press; 1994.
[6] Baliki MN, Monsour AR, Baria AT, Apkarian AV. Functional reorganization of the default mode network across chronic pain conditions. PLOS ONE 2014;9:1–13.
[7] Pulvers K, Hood A. the role of positive traits and pain catastrophizing in pain perception. Curr Pain Headache Rep 2013;17:330–43.
[8] Skinner BF. The operant side of behavioral therapy. J Behav Ther Exp Psychiatry 1988;19:171–9.
[9] Fishbain DA, Lewis JE, Gad J. The pain-suffering association. A review. Pain Med 2015;16:1057–72.
[10] Leung RH, Stroman PW. Neural correlates of cognitive modulation of brain perception in the human brainstem and cervical spinal cord using functional Magnetic Resonance Imaging: a review. Crit Rev Biomed Eng 2016;44:33–45.
[11] Fillingham RB, Ness TJ. Sex-related hormonal influences on pain and analgesia responses. Neurosci Biobehav Rev 2000;24:485–501.
[12] Cairns BE, Gazerani P. Sex-related differences in pain. Maturitas 2009;63:292–6.
[13] Aliosi AM, Ceccarelli I, Carlucci M, Suman A, Sindaco C, Mamelli S, Paci V, Ravaiola L, Passavanti C, Bachiocco V, Pari C. Hormone replacement therapy in morphine-induced hypogonadic male chronic pain patients. Reprod Biol Endocrinol 2011;9:26–36.
[14] Harrington R. On the tracks of trauma: railway spine reconsidered. Soc Hist Med 2003;16:209–23.
[15] Reilly PA. "Repetitive strain injury"; from Australia to the UK. J Psychosom Res 1995;39:783–8.
[16] Bortz WM. Disuse and aging. JAMA 1982;248:1203–8.
[17] Corcoran PJ. Use it or lose it – the hazards of bed rest and inactivity. West J Med 1991;154:536–8.
[18] Woolf CJ. Central sensitization: implications for the diagnosis and treatment of pain. Pain 2011;152(3 Suppl.):S2–15.
[19] Elliot TR, Jackson WT, Layfield M, Kendall D. Personality disorders and response to outpatient treatment of chronic pain. J Clin Psychol Med Settings 1996;3:219–34.
[20] Keefe FJ, Rumple MZ, Scipio CD, Giordano LA, Perri LM. Psychological aspects of persistent pain: current state of science. J Pain 2004;5:195–211.
[21] Harrington SR, McKinley JC. Manual for the Minnesota Multiphasic Personality Inventory. New York: Psychological Corporation; 1943.
[22] Burke NN, Finn DP, McGuire BE, Roche M. Psychological stress in early life as a predisposing factor for the development of chronic pain. Clinical and preclinical evidence. J Neurosci Res 2016 [Epub ahead of print].
[23] Lundberg M, Styf J, Jansson B. On what patients does the Tampa Scale for Kinesiophobia fit? Physiother Theory Pract 2009;25:495–506.
[24] Vlaeyan JW, Kole-Snijders AM, Rotteveel AM, Ruesink R, Heuts PH. The role of fear of movement/(re)injury in pain disability. J Occup Rehabil 1995;5:235–52.