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EPISODIC MIGRAINE (S NASAS, SECTION EDITOR)

Can Anything Good Ever Come From Bearing Migraine Attacks? Suggestions for a Comprehensive Concept of Gain in Migraine

Heiko Pohl[1] · Maximilian Schubring-Giese[1] · Andreas R. Gantenbein[2,3]

Abstract

Purpose of Review The purpose of this review is to summarise the current state of knowledge concerning known types of gain, the reasons why patients might seek it, as well as implications for headache disorders.

Recent Findings Even though the subject has been studied in the past, it received less attention in recent years.

Summary There is no doubt that migraine is a highly disabling disorder. However, attacks sometimes may be beneficial for the migraine brain as a time-out from the daily routine. On the other hand, patients are often stigmatised as trying to satisfy other needs through their disease. These "other needs" may be the exaggerated seeking for attention and affection or an undue official sickness certificate and were named secondary gain. Striving for secondary gain denotes a behaviour that aims at benefiting from a disease in a way that is seen as inappropriate by others. The fact that the term has persisted in doctors' vocabulary for decades probably indicates that it designates a concept considered relevant by many. However, its usage is complicated by its usually imprecise definition. We found in a literature search that the strive for secondary gain is not limited to neurosis, might both occur consciously and unconsciously, sometimes may aim at financial gain and sometimes at social gain, and can either be potentially expected or readily obtained. This behaviour mainly seems to aim at shaping one's interactions with the environment. Its causes have not been elucidated completely, though, but "unrequited demands for love, attention and affection" have been postulated. The desire for social gain can be influenced by approaches based upon behavioural psychology. Broaching the issue of secondary gain may be beneficial in the daily clinical routine.

Keywords Headache · Secondary gain · Primary gain · Migraine · Pain behaviour

Abbreviations

CH	Cluster headache
cM	Chronic migraine
CPSP	Central post stroke pain
eM	Episodic migraine
LBP	Lower back pain
n/a	Not applicable
SFN	Small fibre neuropathy
TN	Trigeminal neuralgia

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✉ Heiko Pohl
heiko.pohl@usz.ch

[1] Department of Neurology, University Hospital Zurich, Frauenklinikstrasse 26, 8091 Zurich, Switzerland

[2] RehaClinic Bad Zurzach, Bad Zurzach, Switzerland

[3] University of Zurich, Zurich, Switzerland

Introduction

Migraine is a disorder characterised by recurrent headache attacks with hypersensitivity to different stimuli [1]. Even though pain is the most prominent feature of the disease, it imposes much more than that on the affected individual. During the headache phase, patients often withdraw to a darkened room experiencing photo- and phonophobia. Also, concentration can be impaired, even after the pain subsided, making resuming work particularly difficult. [2] Not surprisingly, the burden associated with the disease—both at a societal and an individual level—is tremendous [3].

Despite these well-described and widely known bothers that come with migraine attacks, many patients feel stigmatised [4] and try to hide their migraine from others

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[5]. And their fear might indeed be justified. One study confirmed that stigmatising language can be found in newspaper articles reporting on migraine [6]. Parikh et al. cited a survey among managers in which half of the participants declared not consistently accepting headaches as a reason for sick leave [7].

One reason for this might be that migraine attacks usually are invisible to others, leaving no scars and thereby making it difficult to comprehend what patients are going through. Empathy is a difficult task, if neither facial expression nor spoken words communicate the suffering, but absence is the only symptom within the others' grasp. All that might be noticed at work is that the migraineur's duties are left for others to accomplish. The next day that person resumes work, seemingly healthy, almost as if nothing had ever happened. Migraine pain lacks objectivity to some degree; its experience therefore is likely to remain a subjective one to which others cannot relate. An overview based upon our experience of the degree of "objectivity" in different pain disorders as well as the reaction elicited in others can be found in Table 1.

Might some of the stigmatisation in migraine be the consequence of patients taking advantage of "benefits" of their disorder or even abusing it?

We will try to explore whether benefits may come with or may be obtained through migraine attacks in this review. For now, we shall simply acknowledge that most diseases, however sombre their prognosis may be, do at least have some positive effects, like for instance an increased care by family and friends. Some, however, seem to be taking or demanding more than their due. And frequently, insinuations are voiced that certain patients do not want to be cured at all, but instead prefer to continue benefiting from their disease's advantages [8]. Based on Sigmund Freud's thoughts, using a disorder as pretext for pressing for unjustified boons or maintaining symptoms in order to continue benefitting from a disease went down in literature as "secondary gain" [9]. But can anything good ever come from bearing migraine attacks at all?

In her very interesting article, Loder discussed whether migraine attacks may be associated with evolutionary advantages [10••]. The question whether migraine attacks may offer advantages in social settings has received little attention by researchers—we found only few studies on that subject [11•, 12, 13].

In other diseases, the term "gain" has been studied and applied more frequently. To what extent secondary gain can influence convalescence and why it seems to attract some patients more than others was often and controversially debated throughout the decades. One idea open to question is whether patients try to exploit their diseases deliberately and if by doing so this could still be called a secondary gain given the psychoanalytical roots of the term. The difficulties regarding this concept are reflected by the fact that not one single definition has become widely accepted [14].

In this review, we summarise the current state of knowledge concerning known types of gain, the reasons why patients might seek it, as well as implications for headache disorders.

Methods

This is a narrative review based upon an extensive Medline search for the keywords "secondary gain", "compensation neurosis", "social gain" and "financial gain" as well as "headache" and "migraine". A snowballing technique was used to identify further related articles. Given the paucity of literature published on secondary gain in migraine patients, a purely systematic review would not have reflected the vastness of the topic.

The Psychoanalytical Origin of the Term

One of the first mentions of the expressions "primary gain" and "secondary gain" can be found in the 24th chapter of

Table 1 Overview of the objectivity of different pain disorders as well as the reaction elicited in others; + and − denote the presence and absence of the relative quality, respectively, as well as its magnitude; *note*: even though CH usually provoke strong reactions in others, their visibility is considerably reduced by their predominantly nocturnal occurrence. *CH* cluster headache, *cM* chronic migraine, *CPSP* central post stroke pain, *eM* episodic migraine, *LBP* lower back pain, *n/a* not applicable, *SFN* small fibre neuropathy, *TN* trigeminal neuralgia

Disorder	Long-term burden	Objectivity/"visibility"	Attention from others	Compassionate reactions	Invalidity pension possible
Acute external injury	−	+	+++	+++	n/a
SFN	+	+	−	−	−
LBP	++	+	++	++	++
CH	+++	−	+++	++	+
eM	++	−	−	+	−
cM	+++	−	−	+	−
CPSP	++	++	−	−	+
TN	+	+	+	+	−

Freud's *Introductory Lectures on Psychoanalysis* first published in 1917 [9]. There, Freud initially elaborates on primary gain, which may consist of an outer and an inner gain: He explains that during the course of a neurosis, symptoms can be generated which serve to attenuate an inner conflict, leading to an inner gain. If these symptoms can be used to fight the causes of the conflict in the real world, an outer gain can be achieved as well. He gives the example of a woman treated badly by her husband who she feels unable to leave. The conflict between the urge to leave him and her inability to do so ultimately generates symptoms which she can openly lament about thus influencing her husband's behaviour.

The longer these symptoms persist, however, the more difficult it becomes to rid oneself from them. According to Freud, these symptoms eventually prove to be helpful in other circumstances as well and do not serve exclusively to deal with the initial conflict anymore. He called this phenomenon "secondary gain".

Soon after having been coined as a term, "secondary gain" reached broad distribution even outside the psychoanalytical literature and with regard to diseases other than neuroses [15]. This step had been legitimised by studies showing that advantages and gain associated with somatic disease are often comparable to those associated with conversion disorders [16]. Often, however, this was used to insinuate that patients do not actually want to be cured from their disease but enjoy its advantages and preferred continuing to do so [8]. The concept of patients striving deliberately and consciously for secondary gain was heavily debated [8].

Primary Gain

Adapting Freud's thoughts to somatic diseases, we wish to refer to advantages which are a necessary consequence of one's disease or that come without any effort on the patient's part as primary gain.

Exploring whether migraine does have positive aspects at all, Stout asked some of her patients if their headache disorder had "anything good or pleasant" to offer [11•]. Half of the 18 participants affirmed that question and reported the following benefits: family members taking over some of their duties, rest, sleep, stopping to worry, pressure relieve and having an excuse for not studying. Overall, the disease offered an appreciated but unrequested rest.

While the interruption of the daily routine is indeed a necessary consequence of migraine attacks, it seems likely that its value depends on the frequency of its occurrence. If the pain persisted permanently or almost permanently, attacks probably were but an annoying obstacle to personal freedom—nowhere near anything we might happily call gain. Further research is warranted to understand the economics and consequences of this type of gain: Up to which frequency of headache attacks can interruptions be considered beneficial? Why did only 50% of the participants of the above-mentioned study consider the break as something "good or pleasant" [11•]. Does having a break influence one's opinion of migraine attacks only or does it have a further-reaching positive influence on everyday performance? What role do character traits and environmental factors play?

Arguably, gain in these migraineurs seems to lie in a temporary attenuation of the consequences of certain character traits which have been said to be present rather regularly in these patients. In the past, doctors used many adjectives to describe migraine patients, like perfectionistic, ambitious, conservatively but well dressed, afraid of being wrong, inflexible, desiring to be well thought of, impatient and courteous—to name but a few [17]. Later, experts in personality psychology conducting systematic research were unable to confirm most of these observations; only "neuroticism" has consistently been shown to be associated with migraine [18]. That trait has been defined as "the tendency to experience frequent, intense negative emotions associated with a sense of uncontrollability […] in response to stress." [19]. It is tempting to speculate that migraine attacks may offer temporary recovery from an uncontrolled or maladaptive stress response.

Support for that idea comes from Borsook et al. who hypothesise on migraine being "an "ideal" brain allostatic load disease model" [20••]. According to these authors, the brain constantly adapts to external stressors and maintains physiologic stability through so-called allostatic responses. There seems to be no "warning light" cautioning against improper use or overuse of the brain, though. If stressors occur too frequently or the response is maladaptive, these responses result in so-called allostatic load, i.e. "wear" of the system which eventually may accumulate instead of being reduced. In their view, migraine attacks would be the consequence of allostatic overload and the attack frequency would be determined by its amount. Indeed, hardly any migraine patient considers his headache attacks to occur completely at random, a clear majority of them can name at least one trigger factor—most frequently stress itself [21, 22].

Loder who discussed potential evolutionary advantages of migraine seconded the idea of migraine headache serving as "defence mechanism" against too much stress [10••]. She hypothesises, however, that migraine might not simply be a sign of overstraining but rather an invitation to avoid an unedifying environment in the future. The view of migraine as negative reinforcer is challenged by the fact that patients cannot always tell how their migraine was triggered and perceived triggers cannot always be reproduced [21, 23]. What is the purpose of reinforcement if the individual is unaware of what is being reinforced? Alternatively, one might speculate whether migraine attacks take over the role of a "fuse" protecting the brain against overstressing by demanding a cool down period which allows restoring proper functioning.

Possibly, one argument in favour of that latter hypothesis may be seen in the peri-ictal normalisation of the habituation deficit in migraine patients [24–26]. After all, the idea of acute pain as a warning sign against impending damage or misuse is a recurring theme in medicine in general.

The mechanism through which headache spells may lead to gain is at least twofold. Firstly, pain slows the subjective flow of time and detains the thoughts in the present, impeding to ruminate about tomorrow [27]. In more general terms, the purpose of any pain is probably to keep one's thoughts focused on the present not allowing anything else but to deal with the pain. Perhaps Emily Dickinson had that idea in mind when she eloquently wrote in a poem that pain "has no future—but itself" (see Fig. 1 for the complete poem). Secondly, a fair share of this effect is probably due to the tiredness that often heralds or accompanies migraine attacks and ultimately forces the patient to relax in sleep [28].

These thoughts guide us back to Freud's hypothesis of primary gain resolving an internal conflict. In migraine, the conflict seems to lie in the discrepancy between the number of stressors to deal with and the number of stressors than can be dealt with effectively. In that case, of course, the best way to cope with the disease would be to tailor a bespoke environment to which one can adapt successfully—and not to engage in a purely symptomatic treatment using painkillers to suppress pain attacks. Relying solely on avoiding known trigger factors might not be helpful, though, as their capacity to provoke attacks was found to be rather weak in a prospective study [23]. It suggests itself that these factors are but "the straw that breaks the camel's back" and add to the effect of other, longer and contemporaneously acting trigger factors.

Promising therapeutic approaches have focused on finding equilibrium between stress-prompting and stress-relieving factors. Treatments which proved useful counter-balancing life's stressors are progressive muscle relaxation, autogenic training and meditative or relaxation [29]. In a way, these techniques seem to reproduce the primary gain of migraine attacks bypassing the pain.

Pain has an element of blank;
It cannot recollect
When it began, or if there was
A time when it was not.

It has no future but itself,
Its infinite realms contain
Its past, enlightened to perceive
New periods of pain.

Fig. 1 Pain has an element of blanc by Emily Dickinson (1830–1886)

Secondary Gain

In a first approach, secondary gain may be defined as "the psychological and sociological advantages which are obtainable through being ill" [30]. This definition, however, at most alludes to the difficulties, insinuations and frustrations that have shadowed the term's path through the decades. Indeed, this highly stigmatised expression quite often comes with a subtext, namely the allegation of malingering [31]. But not only: When preparing this manuscript, we realised that the term "secondary gain" may elicit rather strong reactions in some patients, too, as it represents the prejudice and stigmatisation they feel to be subjected to all too often. The discussion will necessarily lead us into rough terrain. We do not believe, however, that shying away from areas of conflict ever decreased tension. In order to do justice to patients suffering from chronic diseases, it is necessary to take into account not only the disease itself, but also the way it is dealt with. If one succeeds to do so in a neutral, open-minded and impartial way, a foundation may be laid for a more holistic approach to health and treatment. This idea is—of course—not new; it has already been recommended a long time ago to actively address a possible search for secondary gain, too [31].

Having said that, one can hardly deny that at least some of the term's popularity seems to have stemmed from its capacity to serve as an euphemism for malingering—or more often the allegation thereof. Already long before Freud's works, it had often been suggested that some patients pretend or exaggerate their symptoms in order to benefit from them [8] and these thoughts slowly pervaded the term despite its psychoanalytical roots. What doctors tried to put in words was what they felt to be an imbalance between the seemingly excessive and somewhat inappropriate compensation that some patients claimed from their surroundings for enduring their disease and what others were willing to concede. But not only that, curiously, sometimes the impression arose that somehow some patients' behaviour seemed to prolong the course of their disease and obstruct treatment success [32]. These ideas may remind us again of Freud who described secondary gain as resulting from (mis-)using symptoms for other purposes than the one they initially had appeared for [9].

Already quite early, though, it was heavily debated whether the connotation of "malingering" in the sense of exaggerating or pretending symptoms deliberately had been justified at all. Many preferred to think that the drive to seek secondary gain stemmed from forces unnoticed by one's conscious mind [14]. Others interjected, however, that at least if a financial gain is aspired, the striving cannot remain completely unconscious anymore [31]. On the other hand, the "unshakable conviction of unfitness for work" which Miller—a firm believer in the concept of secondary gain—reported about clearly seems to be anchored outside the consciously accessible part of the mind [32]. It is not believed that simulation plays a role in

these patients. It seems more likely that the way of dealing with a disease and evaluating its severity differs strongly between patients. In any case, these thoughts indicated that some doctors suspected qualitative differences between seeking secondary gain and simply making the best out of one's disease.

A widely accepted theory on why some patients might try to obtain advantages seeming unjustified to others through their disease and others do so less or not at all is yet to be reached, but much has been speculated. Alluding to Freud's thoughts [9], one may hypothesise that once a patient got used to his symptoms, they might prove useful in other circumstances considered unpleasant or problematic, too. Sarwer-Foner added later that if patients prolong their disease, they might do so because of "unrequited demands for love, attention and affection" [30]. Thus, according to these thoughts, secondary gain is not about a matter-of-factly quest for advantages and comfort in life but foremost about shaping the interaction with the surrounding world to suit one's needs and desires. Again, it remains open for discussion whether the search for secondary gain is a consequence of a disease or rather of a long-standing whish, independent of any somatic complaint. It probably is fair to say that when treating a patient in pain it is necessary not to focus solely on symptom palliation but the whole being.

Because of the difficulties to reach a widely accepted definition of the term that considers all these nuances and subtleties and because of the risk of stigmatisation, it has been demanded that it be not used furthermore at all [33]. On the other hand, the fact that doctors have continued using that expression for decades in spite of these concerns strongly suggests that the concept might indeed describe a real and relevant phenomenon. Those who choose to continue using the term must be cautioned not to forget its somewhat fuzzy definition, complexity and stigmatising connotation.

In addition, while discussing secondary gain, it is advisable to keep in mind that every chronic disease is associated with considerable disadvantages, too—so-called secondary losses. While Freud had already emphasised that symptoms created during the course of a neurosis may have negative consequences [9], other authors underlined later that somatic diseases have disadvantages that exceed the symptom burden as well [15]. Among these may be financial losses, abandoning of leisure activities held dear, stigmatisation and the feeling of guilt [15]. Regarding migraine patients in particular, in the past years the burden of their disease has widely been studied and was found to be even higher than in most other diseases [3, 5].

These thoughts led to general doubts whether one should speak at all of gain in the context of a disease. If a patient's striving for secondary gain prolonged convalescence and thereby increased disadvantages, any possible gain would have to bear comparison with losses accumulated throughout the course of the disease. [31] Whether patients seeking secondary gain allot equal consideration to associated secondary losses, however, remains to be elucidated. [15] In any case, it must not be forgotten that patients did not choose their disease. The negative aspects—or burden of disease—have been imposed on them. To our knowledge, it has not been investigated whether patients seeking secondary gain stopped hoping and longing for sanity and soundness.

In the relevant literature, two variations of secondary gain are discussed: One is the so-called financial gain, characterised by hopes for financial advantages which can—for instance—be expressed as an application for a disability support pension [34, 35]. The term compensation neurosis—a term still in use in the 10th edition of the International Classification of Diseases [36]—has been coined to describe cases in which financial compensation is claimed and "in which such a claim is thought to be the most significant maintaining cause of the symptoms" [37]. It has been cautioned not to suspect a compensation neurosis in every person requesting financial settlement [38] and not to confound the concept with deliberate and conscious exaggeration [39].

This needs to be distinguished from the social gain which is characterised by considerate and compassionate reactions of the patient's social circle [34, 40].

Social and financial gain do not only differ in their aims but also in the timing at which advantages are obtained: Social gain can be acquired immediately whereas a financial gain must be hoped for. The former can be referred to as immediate gain, the latter as potential or expected gain [14].

Patients suffering from pain disorders are particularly often subject to allegations of seeking advantages through their disease.

Financial Gain

The term "financial gain" denotes monetary compensation for enduring a disease which a patient tries to receive in a seemingly unjustified or exaggerated attempt or through the perseveration of symptoms [34–36]. Attention must be paid to nuances in that case: doctors considering the application for a disability pension unjustified do not make judgements about the patient in general. Financial gain primarily is about diverging perceptions of fitness for work and making a living.

Most reports on patients striving for secondary gain in the shape of money are about accident victims. This so-called compensation neurosis is said to occur more frequently in men than in women [32]. Symptoms stated by these patients develop over the course of some weeks, mostly do not improve over time and usually comprise headache, dizziness, difficulties to focus, irritability and restlessness. It has been found that patients often bemoan their fate in a dramatised way and never bear responsibility for the accident.

While migraine attacks by definition are not the consequence of accidents, post-traumatic headaches may have migrainous features [1, 41]. It has been heavily debated whether organic or psychological factors prevail in perpetuating post-traumatic headache [42, 43]. The difficulty to answer that question is further increased by papers in which malingering and the search for secondary gain are equalised [44]. Information on that matter therefore must be derived from other pain disorders.

The aspects discussed so far may have led to the impression that the search for secondary gain only exists in the perception of doctors. One might accuse healthcare providers of imputing unrighteous behaviour to their patients when treatment fails or the doctor-patient relationship degrades. There is, however, some evidence that the theoretical possibility to benefit from a disease impacts its prognosis: Neck pain attributed to whiplash injuries persists in up to 50% in countries where financial gain can be envisioned [45], and only rarely in countries where financial settlement is excluded *a priori* [46]. Miller believed that "between a quarter and a third of the victims of accidents" who were involved in an accident that was "due to someone else's fault at any rate in the patient's estimation" and that "occurred in circumstances where the payment of financial compensation is potentially involved" might be affected by compensation neurosis [47]. Seeking financial compensation does not seem to be limited to accidents, though: Another study analysing soldiers who underwent surgery for lower back pain found that the higher the potential financial gain in case of retirement, the less frequently soldiers returned to active duty [48].

From a logical standpoint, if the sole purpose of these strivings was to maximise profits, we should expect patients to recover from their symptoms as soon as money has been paid or invalidity pension has been granted. Even if some researchers did indeed reason based upon their data that patients' complaints improve once financial recompenses were obtained [49], the authors of a meta-analysis concluded that payments usually have a negative impact on the success of therapy of patients suffering from pain disorders [50]. Even worse, many patients' pain did not ameliorate at all after financial settlement [51]. Differently from what has been suggested in the past, patients "cured by verdict" are an exception rather than the rule [52]. The purpose of striving for compensation is certainly not to surreptitiously obtain money that is not one's due. In some cases, at least, it has been speculated that the granted pension provides an "official" excuse for personal shortcomings and allows softening the judgement of one's own life-work [53].

Social security benefits might not be of much relevance to migraineurs—only a small proportion is on long-term sick leave [5]. Little is known about the number of patients receiving a disability pension. One can only speculate that the difficulty to obtain a social security benefit reduces the number of patients trying to obtain financial secondary gain from their migraine attacks. Further research might prove helpful.

Regarding the aetiology of the so-called compensation neurosis, some authors considered the accident itself to be the cause of the strive for settlement for traumatic damage while others suspected pre-existing psychological conflicts to be at play [37]. The hope for a financial benefit being only linked to diseases which offer a theoretical possibility for success, it seems unlikely that the desire for gain is a necessary consequence of their disease. We therefore favour the idea of the strive for secondary gain satisfying long-standing needs which have (latently?) been present before the accident or disease onset. This hypothesis is supported by financial settlement not leading to substantial improvements of the symptoms in many cases—the need for the symptoms persists even after payments were made.

Paradoxically at first sight, some authors found that a compensation neurosis is most frequently associated with diseases hardly perceivable by others. Patients suffering from evident and visible injuries are less prone, possibly because their credibility is not questioned and there is less doubt that obtained disability pensions will still be granted in the future, even if their disability claims are re-examined by different experts [37, 39].

Social Gain

While a financial gain often is a potential gain, which eventually may or may not be obtained, a social gain is easier to reach. The way to obtain this type of gain chosen most commonly is the so-called pain behaviour which consists of visible and audible signs communicating the endured pain to others, like a face contorted in a grimace of pain or taking painkillers ostensibly [54]. The reaction of the patients' significant other is crucial: If a patient's partner grants secondary gain, henceforth reports of even stronger pain and decreased activity will be the consequence [35, 55].

The consequences of striving for social and financial gain do not seem to differ much: The more gain of any type these patients have, the more often disability and depression were found. However, in contrast to financial gain, the amount of social gain correlated positively with pain intensity reported by these patients [34].

Of course, sharing one's suffering with others, looking for compassion and asking for support and care are common to most humans. Vilifying this behaviour would be absurd. However, it is the extreme that may pose a problem. In one case report, for instance, doctors believed that a patient with frequent migraine attacks ascribed so much importance to social gain that treatment success was prevented [12].

At first sight, however, it seems unlikely that migraine attacks may offer any social gain at all. Why should pain behaviour impress anyone given how stigmatised the

disease is? How can pain behaviour be communicated if withdrawal to the solitude of a quiet and darkened room is inherent in the disease?

There also is theoretical evidence that having a migraine attack is nowhere near an invitation to interact with others. In their profound paper, Montagna et al. highlight the similarities between migraine attacks and visceral pain [56]. They describe visceral pain as being perceived as inescapable and thus leading to a passive coping strategy coordinated by the ventrolateral periaqueductal grey and characterised mainly by disengagement from the external environment. Yet, some migraine patients are able to lend a thought to the world outside the bed they took refuge in and report appreciating others taking over the duties the attack did not allow them to accomplish themselves [11•]. And indeed, there is at least some evidence that pain behaviour is not completely alien to migraineurs [12, 13]. In one study, migraineurs searching for social gain were identified by asking their spouses to quantify their pain behaviour using a questionnaire [13]. In general, patients suffering from chronic migraine or chronic headaches, displaying pain behaviour throughout the consultation and hardly ever benefitting from any treatment are a small minority.

Regarding the aetiology of social gain, concepts from behavioural psychology prevail in literature. According to these, social gain is the reward for pain behaviour and thereby may act as a reinforcer [15, 54, 57]. If a patient's pain behaviour is richly rewarded with love and attention, he will communicate his ordeal even more frequently, more desperately. These thoughts are supported by the finding that pain behaviour in patients suffering from chronic pain (in contrast to acute pain) does not act as a warning signal anymore [58]. None of this, however, explains why some patients seem to be attracted more strongly by secondary gain than others.

It has been advised to take any desire for secondary gain into account when treating patients—instead of just increasing pain medication [12, 31]. A holistic approach is absolutely warranted. For this purpose a behavioural-analytical approach is the treatment of choice. Its primary aim is not to change pain perception but the patients' reaction to the chronic pain trying to reduce disability [59]. The basic idea behind this approach was that the patients' surroundings reinforce pain behaviour and thereby increase disability [15, 54, 57]. The importance of the patients' significant other has been particularly emphasised [55].

In one study, the physical activity of the examined patients correlated negatively with the amount of observed pain behaviour [58]. Another study showed that patients suffering from back pain showed less pain behaviour but increased their activity when pain behaviour did not elicit any reaction from their spouses anymore—independently from the pain intensity [54]. Those findings imply that chronic pain (in contrast to acute pain) does not warrant adjusting the amount of activity to the pain intensity [58].

These studies were accused of teaching patients to endure pain silently without attempting to reduce the pain itself [59]. The authors replied that these approaches had not been designed to reduce pain but to reduce disability [59].

We did not find a systematic investigation of the influence of the reduction of pain behaviour on pain intensity. There is some evidence, though, that the amount of social gain (in contrast to financial gain) does correlate with the pain intensity [34] raising hopes that reducing pain behaviour might prove beneficial for the pain therapy as well. The discovery of descending inhibitory pathways identified a possibility by which cortical processes might indeed influence the intensity of perceived pain [60].

In a case report about a single patient suffering from migraine attacks, pain behaviour and the frequency of her migraine attacks decreased after her family and doctors had been instructed not to grant any social gain and not to inject pain medication [12]. Whether the excellent effect of the treatment might also have been favoured by detoxification of a previous medication overuse has not been discussed in the case report, though.

Given these findings, it cannot be overemphasised that the discomfort of chronic pain is almost certainly not solely due to pain itself but also to the way it is dealt with. This view underlines the need for therapeutic strategies that take the whole human being into consideration and do not focus on single aspects only.

Towards an Operational Definition of Secondary Gain

The research of gain is particularly difficult, given that no diagnostic criteria for the term are available. While in a first approach primary gain might be supposed to be present in those who report finding benefits in their migraine attacks, secondary gain is more difficult to study. Analogously to Potter Steward's famous statement [61], the way many doctors decide whether someone is looking for secondary gain basically seems to come down to "I know it when I see it". The concept of "secondary gain" seems to lack objectivity, too.

In the past, the need for a universally accepted definition of secondary gain has been emphasised [14]. Contentious issues were whether secondary gain can be sought consciously, whether it is limited to neurosis, whether it is due to a character trait or the disease itself and whether it really prevents therapeutic successes [8, 14]. The fact that a previously unconscious strive can eventually become conscious through psychotherapy further complicated the quest for a definition [14]. Some authors recommended not using this term furthermore [31, 33, 62]. On the other hand, because secondary gain does have an impact on the therapeutic success and may—at least partially—be modified, it should not be ignored or regarded as meaningless.

In contrast to the ICD-9 and ICD-11, the ICD-10 includes the term "compensation neurosis" under F68.0 "Elaboration of physical symptoms for psychological reasons" [36]. It is defined as follows: "Physical symptoms compatible with and originally due to a confirmed physical disorder, disease or disability become exaggerated or prolonged, due to the psychological state of the patient. The patient is commonly distressed by this pain or disability, and is often preoccupied with worries, which may be justified, of the possibility of prolonged or progressive disability or pain". Interestingly, in this definition, no importance is given to the purposes that this behaviour might serve. In addition, it might prove difficult, to decide, whether symptoms have "become exaggerated or prolonged, due to the psychological state of the patient". In either case, it offers a basis on which trials could be designed to study not only compensation neuroses but also other types of secondary gain.

It has been proposed to develop an operational definition that could be verified empirically [15]. The presence of behaviours and views that indicate that patients might be looking for secondary gain could be used to draft such a definition. This approach would allow bypassing controversial issues like for instance the question whether this behaviour was adopted consciously.

Operational definitions have already been in use for social gain. Haber et al. identified patients striving for social gain by asking their spouses about "solicitous or reinforcing behaviour" using an unpublished questionnaire [13]. In other studies, pain behaviour was quantified based upon observations by caregivers or spouses [35, 58]. Since pain behaviour seems to be the common denominator of the search for social gain, this approach might indeed prove rewarding.

Assessing the desire for financial gain might be possible using a more straightforward approach. In one study, psychiatric patients were asked directly whether they were expecting their therapist to support them regarding financial issues [53]. This method might be justified by Miller's report on these patients' "unshakable conviction of unfitness for work" [32].

Summary and Conclusion

The question overarching this article is whether one may find benefits in his or her migraine attacks. Indeed, we found that some patients value the time-out from their daily routine and temporary attenuation of expectations others might have towards them. Matters become more complicated when we take patients into account who seem to try to satisfy other needs through their disease, too. These "other needs" may be the exaggerated seeking for attention and affection or an undue official sickness certificate and were named secondary gain. The term represents a highly stigmatised concept.

Striving for secondary gain denotes a behaviour that aims at benefiting form a disease in a way that is seen as inappropriate by others. Often, the duration of the disease seems to be prolonged, too. The fact that the term has persisted in doctors' vocabulary for decades probably indicates that it designates a concept considered relevant by many. However, its usage is complicated by its usually imprecise definition. Unfortunately, only little data is available about migraine patients seeking secondary gain.

We found in our literature search that the strive for secondary gain (a) is not limited to neurosis, (b) might both occur consciously and unconsciously, (c) sometimes aims at financial gain and sometimes at social gain and (d) can either be potentially expected or readily obtained.

This behaviour mainly seems to aim at shaping one's interactions with the environment. Its causes have not been elucidated completely, though, but "unrequited demands for love, attention and affection" have been postulated. The desire for social gain can be influenced by approaches based upon behavioural psychology.

To be able to tailor a therapy to a patient's disease taking his possible quest for secondary gain into account—especially if disease course is prolonged—an operational definition of the term is mandatory. Thus, further research is needed to quantify and fully appreciate the factors influencing the outcome of migraine.

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Compliance with Ethical Standards

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