Review Article

Motivational Interviewing: An Evidence-Based Approach for Use in Medical Practice

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Summary

Background: Motivational factors in health-relevant modes of behavior are an important matter in medical practice. Motivational interviewing (MI) is a technique that has been specifically developed to help motivate ambivalent patients to change their behavior.

Methods: This review is based on pertinent publications retrieved by a selective search in the PubMed, Cochrane, and Web of Science databases. Special attention was paid to systematic reviews and meta-analyses concerning the efficacy of MI in the medical care of various target groups. The present review focuses on the relevance of MI for patients with highly prevalent disorders.

Results: Meta-analyses reveal statistically significant mean intervention effects of MI in medical care with respect to a variety of health-relevant modes of behavior, in comparison to standard treatment and no treatment in the control groups (odds ratio [OR]: 1.55; 95% confidence interval: [1.40; 1.71]). Statistically significant effect sizes were reported for substance consumption, physical activity, dental hygiene, body weight, treatment adherence, willingness to change behavior, and mortality; effects on health-promoting behavior were mixed. Studies of the factors that contribute to the efficacy of MI suggest that it exerts its effects largely through the selective reinforcement of statements made by the patients themselves about potential changes in their behavior.

Conclusion: MI has been found useful for strengthening the motivation for behavioral change in patients with various behaviorally influenced health problems and for promoting treatment adherence. It can be used to optimize medical interventions. Further research is needed with respect to its specific mechanisms of action, its efficacy in reinforcing health-promoting modes of behavior, differential indications for different patient groups, and the cost-efficiency of the technique across the spectrum of disorders in which it is used.

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In highly developed industrialized countries, behavioral risk factors such as substance use (tobacco, alcohol), unhealthy diet, and insufficient physical activity are a key determinant of the burden of disease in the population as measured by disability-adjusted life years (DALYs) (1). These factors also have a crucial impact on the course of a variety of chronic diseases.

For example, according to the Global Burden of Disease study, the 23.9 million DALYs lost in the German population in 2010 can be attributed in percentage terms to the following causes (2):

- Unhealthy diet (men: 16.2%, women: 11.2%)
- Smoking (men: 14.2%, women: 6.7%)
- High blood pressure (men: 11.5%, women: 10.2%)
- Overweight (men: 11.5%, women: 10.3%).

The spirit of motivational interviewing (MI)

The fundamental spirit of MI is to encourage and strengthen a trusting relationship, which is key to treatment success and can be characterized by the following components (7):

1. A partnership-like, unpatronizing collaboration with the patient ("communication on equal terms"), in which the clinician does not assume the role of the expert (superior to the patient).

2. A fundamental attitude of acceptance and empathy towards the patient's needs, experiences, and points of view. In addition to unconditional regard for the patient, this includes ensuring their autonomy of choice and decision-making in relation to behavior change as well as the desired goals and methods of change (patient autonomy).

3. Compassion for the patient's life and experience, as characterized by the clinician not pursuing their own interests and giving highest priority to the patient's needs.

4. Evoking motivation to change by exploring and reinforcing the patient's reasons for change. This also includes developing discrepancy between current problem behavior and the patient's goals and values (for example, "You said that it's important to you to do more exercise again. How does that tie in with your smoking?").

Therefore, motivational aspects are a significant factor in patient treatment. Other important motivational factors for medical practice stem from the often insufficient adherence to medication, which, according to a number of studies, lies between 31.2% and 59.1% and also represents a significant factor in the chronification of health impairments (3–5).

Furthermore, societal changes in recent decades that challenge our understanding of the clinician's role are reflected in the concept of "shared decision-making," according to which treatment steps should be developed in consultation with the patient (6).

Motivational interviewing (MI) (7), which originated in the field of addiction treatment, is a promising concept for encouraging motivation to change in patients that are currently either unwilling or ambivalent to change, and can be deployed even with limited time resources. Since the first publications on the approach in the early 1980s, it has also been increasingly used, and successfully so, in other disciplines. This article presents the basic principles of the approach from the perspective of their applicability in medical practice. To assess the effectiveness of the method, systematic reviews and meta-analyses published in the PubMed, Cochrane, and Web of Science databases since 2005 on the effectiveness of MI across disorders in medical treatment settings, as well as on the effectiveness of MI on medication adherence, were selectively searched and summarized using the search terms ("Motivational Interviewing" AND ("primary care" OR "medical care").

Basic tenets of motivational interviewing

Although MI is not a theory-guided approach, it nevertheless combines a variety of evidence-based approaches from cognitive psychology and social psychology. MI assumes that people with problematic behaviors (for example, smoking, high-risk alcohol consumption, unhealthy diet, lack of medication adherence, insufficient exercise) have different levels of readiness for behavior change.

According to Janis and Mann's conflict-theory model of decision-making (8), the advantages of healthy behaviors (such as better health prognosis and improved fitness, among others) are always countered by disadvantages of behavior change (for example, loss of hedonistic reinforcers, significant effort, possible side effects of medication). The assumption in MI is that people with problematic behaviors are not fundamentally unmotivated to change their behavior, but are instead ambivalent, that is to say, their problem behavior conflicts at least to some extent with their self-concepts, values, or life goals, with those affected potentially having subjectively good reasons against a behavior change. If this ambivalence is not recognized, well-intentioned medical advice is perceived by patients as an assault on their freedom of choice, which, according to socio-psychological reactance theory (9), increases their motivation to restore their own subjective power to make decisions. This, in turn, often results in non-compliance either in the form of open disagreement or non-adherence to recommendations. A prerequisite of sustained encouragement of motivation to change is that patients become more aware of their behavioral discrepancies and actively confront their behavior. Therefore, MI is defined as "a person-centered, goal-oriented style of communication with particular focus on expressions of change. The goal is to increase personal motivation for and commitment to behavior change by eliciting and intensifying a person's own reasons for change in an atmosphere of acceptance and empathy" (7). In line with self-determination theory (SDT; [10]), the approach recognizes the needs for autonomy, competence, and relatedness. As such, the atmosphere of acceptance and empathy represents a necessary condition for patients' self-disclosure in interviews relating to difficult or stigmatized subjects such as substance use, overeating, or health problems. The authors of MI have repeatedly emphasized that MI is not a technique, but a fundamental therapeutic style that does not seek to make people change their behavior against their will. Roger's person-centered therapy (11) forms an important basis of the approach, whereby MI is characterized by a goal-oriented approach and can essentially be combined with other therapeutic methods. The hallmark of MI is a differentiation into inner attitude ("human image"), methods and principles of implementation, as well as different processes of implementation *(Box 1)*.

Techniques of motivational interviewing

In addition to the basic principles of MI, the method includes altogether five intervention techniques, the importance of each of which may vary depending on the patient and the status of their treatment (7). The first four intervention techniques are methods that are also used in other schools of therapy, such as client-centered interviewing.

First intervention element

Open-ended questions are helpful for encouraging patients to confront their problem behavior, for example, "What worries you about your drinking?" MI is deemed to be good when at least 70% of the questions asked are open-ended (12).

Second intervention element

Active listening makes it possible to discover and focus on the patient's concerns regarding their problem behavior. As part of this process, the clinician reflects back to the patient the essential content of their statements. Furthermore, active listening not only has the effect that the individual experiences understanding, it also enables the problem to be considered more deeply through increased self-exploration. At least 50% of reflections should be complex and go beyond simple repetition (12). Complex reflections refer either to non-explicit content that is inferred or to emotional elements (for example, patient: "I do think my cough comes from smoking."; physician: "And that worries you."). In good MI, at least two reflections should be used per question asked.

Third intervention element

Affirmation includes praise ("That's great that you want to do something about your smoking!"), recognition ("You are going through a difficult time right now."), and understanding ("I can well understand that you are concerned about the side effects your medication could have.").

Fourth intervention element

Summarizing is an effective technique whereby the contents mentioned by the patient that are significant for motivation to change are reflected back to the patient (for example, "On the one hand, you don't want to forbid yourself anything, but on the other, the amount of money you spend on smoking bothers you and your cough worries you").

Fifth intervention element

MI is characterized in a narrower sense by the encouraging of self-motivational statements. This involves making a distinction between patient utterances that oppose change and suggest a stabilization of the status quo ("sustain talk"; for example, "I don't think those 10 cigarettes a day are so bad") and utterances that make a behavior change more likely in that the patient names reasons and intentions for change ("change talk"; for example, "If I got sick again, I would probably lose my

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BOX 2

Processes of motivational interviewing (MI)

The format of MI treatment can be divided into four distinct processes (7); however, these do not follow on from one another in a static manner, since processes that have already been gone through may become more important again at a later point in time:

● **Relationship building (Engaging)**
  – In this phase, which is indispensable for the development of a therapeutic working relationship, non-judgmental understanding of the patient's views, values, and goals is of central importance. This can also be significant, for example, if the patient is not attending the interview voluntarily but due to external pressure.

● **Finding a direction (Focusing)**
  – In most cases, patients have a number of problem areas, the subjective significance of which can vary greatly. Focusing is about identifying the areas that take priority for the patient.

● **Goal orientation (Evoking)**
  – This process involves the transition to MI in the narrower sense; at this point, the interview becomes goal-oriented. Here, the motivation to change is encouraged relative to the patient's priority areas of life, such that reasons for change and strategies for behavior change are incited by the patient themselves, that is to say, the patient "talks themselves into change," so to speak. These change-related statements are reinforced and intensified.

● **Translating existing motivation for change into concrete action (Planning)**
  – Whereas the first three phases are fundamental constituents of MI, achieving this fourth phase depends on whether the patient decides for behavior change. If this is the case, the focus is put on making the intention to change more concrete in terms of the goals of a change, the envisaged strategies for achieving these goals, and formulating a concrete (that is to say, near-term and implementable) change plan.

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job—maybe I should try the medication after all"). "Change talk" is encouraged by asking specific questions ("How could the medication help you against your depression?"), by affirming ("It's impressive that you see a link between the medication and opportunities for your further career"), or by selective reflection ("The medication can help you to stay healthy") and can be differentiated according to two objectives:

● Building motivation through concrete expressions characterized by the patient stating their desires, abilities, reasons for change, and perceived needs for change, as summarized by the acronym DARN (desire, ability, reasons, and need)

● Stating commitment, activation, and first steps (acronym [CAT] for "commitment," "activation," and "taking steps").

For successful behavior change, it is important that the patient's need for change translates in the next step into a commitment to change behavior.

Information, as well as the clinician's own ideas, can be incorporated in MI, whereby it is important to

TABLE

Selected meta-analytical effect sizes of MI in medical settings for different target criteria according to Lundahl et al. (14)

Target behavior/ outcomes	Number of studies	OR	[95% Confidence interval][1]	Z value	BESD % improved MI	CG
Blood glucose	5	1.7	[0.82; 1.67]	0.85	52	48
Blood pressure	1	1.65[2]	[1.24; 2.19]	3.45	57	43
Cholesterol	3	1.09[1]	[1.00; 1.19]	1.92	51	49
Mortality	3	1.87[1]	[1.03; 3.40]	2.06	59	41
Caries	2	1.85[2]	[1.29; 2.64]	3.36	58	42
Body weight	10	1.17[2]	[1.09; 1.27]	4.22	52	48
Alcohol (amount)	9	2.31[2]	[1.75; 3.06]	5.86	61	39
Tobacco (abstinence)	8	1.34[1]	[1.05; 1.70]	2.38	54	46
Cannabis (amount)	5	3.22[2]	[2.14; 2.79]	5.66	65	35
Self-monitoring	4	2.14[2]	[1.65; 2.79]	5.67	61	39
Medication adherence	4	1.25	[0.95; 1.65]	1.61	53	47
Treatment adherence	5	1.38[2]	[1.18; 1.64]	4.04	55	43
Readiness for change	5	1.97[2]	[1.11; 3.48]	2.53	59	41
Quality of life	6	2.21[2]	[1.65; 2.96]	5.28	62	38

BESD, binomial effect size display: 2 × 2 table [group (MI, controls) × improvement (yes, no)]; [1]p < 0.05; [2]p < 0.01 MI, motivational interviewing

ensure that the patient is prepared to be confronted with the information and that the clinician's viewpoint is expressed merely as an option and not as the only truth. From a methodological perspective, this is achieved in a three-step process (elicit–provide–elicit) by first asking for consent ("Would you like to know more about..."), secondly, offering the information in a neutral way (for example, "Scientific studies have shown..."), and finally asking the patient for their view (for example, "What do you think about..."). Information that the patient does not want or that they perceive as threatening usually causes reactance.

Conflicts during an interviewing session typically occur when interventions are not suited to the patient's current motivation to change, for example, when a patient with high-risk alcohol consumption is given recommendations for action, whereas the patient is not yet clear about whether their alcohol consumption constitutes problematic behavior. This can manifest interpersonal dissonance (discord; for example, "Are you trying to imply that I'm an alcoholic?") or in a reversion to "sustain talk" ("In my case, exercise wouldn't do any good anyway"). In situations such as these, in addition to treating the patient with empathy, it is particularly important to emphasize their autonomy ("Only you can decide whether you want to change something about that") (Box 2, 3).

Effectiveness of MI in medical care

Since the approach was first developed, the number of MI-specific publications has increased exponentially, to the extent that there are now more than 1300 randomized trials and around 150 reviews on the effectiveness of MI in a variety of behaviors and target populations. The majority of studies address problematic substance use. By means of a systematic literature search limited to systematic reviews and meta-analyses in the PubMed, Cochrane, and Web of Science databases on the effectiveness of MI in medical care settings using the search terms ("Motivational Interviewing" AND ["primary care" OR "medical care"]), it was possible to identify a total of nine systematic reviews published since 2005, of which two were meta-analyses. Both meta-analyses found small to moderate effect sizes with regard to various health-related behaviors such as blood pressure, substance use, and medication adherence of d =0.18 (95% confidence interval [0.03; 0.33]; p =0.02) (13) and (odds ratio: [OR] = 1.55 [1.40; 1.71]; p <0.001) (14), for the effectiveness of the technique. The included MI interventions varied from single contacts lasting 15 min to long-term treatments lasting up to a total of 480 min, with the majority of studies including brief interventions of no more than three sessions (14). Selected results on individual outcome parameters from the more comprehensive meta-analysis by Lundahl et al. (2013), which covered 48 studies with a total of 9618 included subjects, are shown in the *Table* (14). Effect sizes represent the improvement in the outcome criterion relative to controls; odds ratios > 1 indicate superiority of the MI group. The practical effect of the intervention is expressed by the binomial effect size display (BESD), in which the probability of success in the treatment group is subtracted from the probability of success in the control group. Values of >50% indicate a greater effect for the condition in question. Particularly marked treatment effects were found for a reduction in substance use, physical inactivity, body weight, and mortality, as well as for improved dental hygiene, acceptance of further treatment, and self-monitoring of health behavior (for example, with regard to blood glucose monitoring and nutrition). No significant effects were seen for eating disorders, self-care behaviors, or individual medical parameters such as heart rate. Effect sizes were greater when the intervention was delivered by the treating clinicians (versus medical/technical assistants). The average treatment effects were significant across all outcome measures, but were most pronounced for patient self-reports (OR = 1.69; [1.55; 1.84]), followed by third-party assessments (OR = 1.48; [1.24; 1.78]), and lowest for biological outcome parameters (OR = 1.18; [1.09; 1.28]) (14). According to Lundahl et al. (2013), effect sizes decrease over time, but five studies with follow-up surveys after more than 13 months nevertheless demonstrate significant effects compared with controls (OR = 1.14; 95% CI [1.03; 1.28]). Treatment effects were significant in waiting lists, as well as in unspecified

BOX 3

Example interview of motivational interviewing

Clinician: "We took a blood sample at your last appointment and I would like to discuss the findings with you. On the whole, your values are normal—only one liver enzyme value is elevated. You can see here, your gamma-GT is 220, a normal value would be 66 at the most. The gamma-GT level generally rises when, over a long period of time, one drinks more alcohol than the liver can break down. How does that sound to you?"
Patient: "I really can't imagine that, I don't actually drink that much. Well, okay, sometimes when I'm under a lot of stress at work, I'll have a few more beers in the evening than usual, but otherwise I just have my after-work beer, and never any hard stuff."

Clinician: "So this surprises you…"
Patient: "Yes, of course, I really don't think I drink that much. I mean, I hardly ever get drunk."

Clinician: "On the whole, you've got your drinking well under control; you only really drink a bit more when you're under a lot of stress."
Patient: "Of course, I'll admit that now and again I need something in the evening to switch off. But I can't imagine that my liver can't cope with it; after all, I used to drink a lot more while I was training and never had any problems."

Clinician: "You don't see any problems with your alcohol consumption, and now the findings bother you, of course. Would you be interested in having a bit of information about the link between alcohol consumption and liver values?"
Patient: "Oh well, why not? Of course, I once read that too much alcohol is not good for the liver, but not in the case of one or two after-work beers…."

Clinician: "Recent studies have shown that alcohol consumption even in comparatively small amounts can cause a number of physical effects. Low-risk alcohol consumption is considered to be a daily amount of no more than two small alcoholic drinks in healthy men, which corresponds to about half a liter of beer. Higher alcohol consumption increases the risk of health consequences such as liver and cardiovascular diseases. Also, the recommendation is to not drink alcohol two days a week. What does hearing that make you think?"
Patient: "Well, to be honest, I'm already above that. I sometimes have four or five beers in the evening. But it never never seemed that much to me—it doesn't make me drunk. But what you've told me about my liver values does of course sound quite worrying…"

Clinician: "On the one hand, you found your alcohol consumption quite normal, buth on the other, you're worried now…."
Patient: "Of course, and I don't want it to get worse. But does that mean I can't ever drink beer again?"

Clinician: "The idea that your liver values will continue to get worse scares you. From a medical perspective, it would be a good idea to abstain from alcohol completely for the time being so that your liver can regenerate, but only you can make that decision. So what do you think about what we've discussed so far?"
Patient: "Well, I suppose I should definitely cut down. To start with, no more alcohol until my liver is okay again. How long will that take?"

Clinician: "Not drinking anything for a while might actually be a good option. It generally takes 2–3 months for liver values to return to normal. How does that sound to you?"
Patient: "Well, 2–3 months sounds like an awfully long time—I mean, I can definitely manage it if I have to, but it's probably okay to drink a beer once in a while when I'm with friends, isn't it? The main thing is that I don't drink as much as I have been drinking."

Clinician: "You're not sure whether you want to see this through for so long. On a scale of 0–10, how important is it to you at the moment not to drink alcohol for 2–3 months, if 0 means "not at all important" and 10 means "very important"?"
Patient: "Well, definitely a 6 or 7."

Clinician: "Being able to sustain temporary abstinence is quite important to you. Why did you choose a 6 or 7 and not a 3 or 4?"
Patient: "If I'm honest, the thing with the liver values does make me think, and you did say that it takes that long for the values to normalize. And perhaps I could prove to myself at the same time that I'm still able to do that."

Clinician: "In addition to the physical health aspect, you could also prove to yourself that you don't need the alcohol. What would have to happen for your importance rating to increase from a 6 or 7 to an 8 or 9?"
Patient: "I'd need to have some sort of plan for what to do when I'm with my buddies. It would be weird to just have a water."

Clinician: "It is actually normal to drink alcohol in your group of friends. How could you nevertheless abstain from drinking alcohol in those situations?"
Patient: "A good friend of mine once went on a diet and cut out beer, and actually everyone accepted it. Maybe I could try that too."

Clinician: "That's a really good idea! If you tell them that you're not drinking at the moment for health reasons, that might help you feel less weird about the situation. So to recap: At the moment, you're worried about your liver values, and you can imagine, in principle, giving up alcohol completely for a while. That way, you would also prove to yourself that you don't need that after-work beer. It would feel strange at first when you meet up with friends, but if you tell them in advance, it shouldn't be a problem. So what could you next step be?"
Patient: "I think, to start with, I'll try not to drink any alcohol for the next two months. Maybe that will already make a difference to my liver values, like you said."

Clinician: "That's a great idea! I suggest we make an appointment in six weeks and see how it went, and do another blood test at the same time."

routine treatments and psychoeducational control conditions.

Reviews of the effects of MI on medication adherence across disorders not limited to medical care found positive, albeit small, effects with a pooled relative risk of 1.17 ([1.05; 1.31]; p < 0.001) (15) and a Cohen's d of 0.23 ([0.08; 0.37], p > 0.001), with the included studies being of heterogeneous quality (16).

A systematic review of the overall effectiveness of MI across settings and based on 104 published reviews (of which 39 were meta-analyses) found good evidence for cessation or prevention of unhealthy behaviors, particularly with regard to problematic substance use (primarily alcohol, cannabis, and tobacco), whereas the evidence for health-promoting behaviors (except the promotion of physical activity) was more heterogeneous and, in terms of the methodological quality of the studies included, weaker (17). With regard to potential moderator variables, effects were found compared to control groups that had received either no treatment or unspecified routine treatment, but not compared to control conditions with other evidence-based interventions such as cognitive behavioral therapy (17). Although studies on the effectiveness of MI in substance-related disorders point to greater cost-effectiveness for MI compared to other evidence-based interventions (18), corresponding reviews on the cost-effectiveness of MI across disorders are lacking to date (17).

On the basis of the studies conducted to date, MI has proved to be an evidence-based, effective, and comparatively economical method of promoting behavior change in ambivalent patients, particularly in the case of problematic substance use. There are not yet enough studies of high methodological quality available for a variety of other medical fields of application, such as motivation to adopt health-promoting behavior, to be able to make detailed statements on the indication for and differential efficacy of MI.

Mechanisms of MI

With regard to the specific mechanisms of MI, three alternative hypotheses are purported. The technical hypothesis, according to which the effectiveness of MI is achieved through basic skills such as open-ended questions, active listening, affirming, and summarizing in the form of selective reinforcement of patients' self-motivational utterances, is the hypothesis that has been the most extensively studied to date and, comparatively, has received the most empirical support (19–21). The relational hypothesis, in contrast, assumes that relationship quality and therapeutic empathy are the most significant factors for the effectiveness of MI. This hypothesis has been investigated to a lesser extent and is deemed to be insufficiently substantiated, with one critical review pointing out that, in the majority of studies considered, the MI clinicians studied differed insufficiently in these characteristics to be able to demonstrate effects on effectiveness (19). The conflict resolution hypothesis states that the effect of MI can be attributed to a large extent to exploration and resolution of conflict, although here again, the empirical evidence is heterogeneous. In their review, Magill and Hallgren (19) conclude that the various factors should be regarded more as necessary than as sufficient conditions for the effect of MI, whereby further research needed.

Conclusions for clinical practice

The MI approach has proved its value for the promotion of intentional readiness for behavior change in a number of behavioral health problems, as well as for the promotion of treatment adherence, and can be used in medical practice even with limited time resources. Continuing education courses on the basic principles of MI, which usually last 2 days, are regularly offered by German Medical Councils and various private sponsors, and specialist literature on different fields of application is available in German (7). A number of German-speaking trainers are members of the international Motivational Interviewing Network of Trainers (www.motivationalinterviewing.org/trainer-listing).

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📷 CLINICAL SNAPSHOT

Calcinosis Universalis in Systemic Sclerosis

A 47-year-old female patient that had been diagnosed in 2010 with diffuse cutaneous systemic sclerosis (ANA titer 1: 1280, anti-Scl-70+, anti-CCP-Ab+) presented due to immobilizing pain and significant circumferential enlargement of the left upper leg. Other symptoms of disease included pronounced sclerodactyly, Raynaud syndrome, pulmonary fibrosis, and impaired esophageal motility. The patient had undergone numerous immunosuppressive treatments (including azathioprine, cyclophosphamide, and tocilizumab) in the past. Whole-body computed tomography (CT) imaging revealed calcinosis universalis with massive involvement of the left upper leg, axillae, and paravertebral region. Calcinosis universalis is a rare complication that has been described in patients with myositis, psoriasis, uremia, and systemic sclerosis. It is characterized by deposits of calcium phosphate crystals (hydroxyapatite) that can accumulate in the deep dermis, subcutaneous tissue, fascia, and muscles. There are no treatment approaches as yet that have a long-term effect in reducing calcinosis in systemic sclerosis. An attempt at treatment with the Janus kinase inhibitor baricitinib initially led to mild colliquation of calcinosis in the upper leg. However, this attempt needed to be discontinued due to recurrent episodes of pyrexia and infectious complications.

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Translated from the original German by Christine Rye.

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Motivational Interviewing:
An Evidence-Based Approach for Use in Medical Practice

The submission deadline is 18 February 2022. Only one answer is possible per question.
Please select the answer that is most appropriate.

Question 1
What are the four processes of motivational interviewing?
a) Engaging, evoking, planning, clinician discontinues contact
b) Engaging, focusing, evoking, planning
c) Focusing, evoking, evaluating success, praising/criticizing the patient
d) Education, provocation, evaluation, distancing oneself from the patient
e) Focusing, distancing oneself from the patient, evaluation,
   praising/criticizing the patient

Question 2
What does the abbreviation DALYs, which is used as a measure of the disease burden in the population, stand for?
a) Disease-adjusted life years
b) Duration-adjusted life years
c) Disease-affected life years
d) Drug-affected life years
e) Disability-adjusted life years

Question 3
What is the patient's basic attitude assumed to be in motivational interviewing (MI)?
a) The patient is essentially unmotivated.
b) The patient recognizes no abnormal behavior whatsoever in themselves.
c) The patient is ambivalent about behavior change.
d) The patient is highly motivated to change their behavior.
e) The patient has no understanding of the fact that their behavior could harm their health.

Question 4
In terms of the therapeutic style of motivational interviewing, what should be avoided?
a) Evoking motivation to change
b) Compassion for the the patient's life and experience
c) Being on eye level with the patient
d) Achieving behavior change against to the patient's will
e) Developing discrepancy between problem behavior and the patient's values

Question 5
One of the techniques of motivational interviewing is to ask open-ended questions in order to address the problem behavior. How high should the minimum percentage of open-ended questions out of all the questions asked be in this type of interview?
a) At least 70%
b) At least 30%
c) At least 10%
d) At least 50%
e) At least 90%

Question 6
Patients' statements about their problem can be roughly divided into two categories. What are these called?
a) "Denial talk" and "progress talk"
b) "Negative talk" and "positive talk"
c) "Bad talk" and "good talk"
d) "Sustain talk" and "change talk"
e) "Ill talk" and "health talk"

Question 7
No significant positive effects have been achieved as yet for which disease pattern according to Lundahl's meta-analysis?
a) Eating disorders
b) Level of alcohol consumption
c) Caries
d) Level of cannabis use
e) Tobacco consumption

Question 8
The chronification of health impairments is often promoted by inadequate medication adherence. How high is the percentage of patients with poor medication adherence according to a number of studies?
a) Approximately 30–60%
b) Approximately 20–40%
c) Approximately 15–30%
d) Approximately 5–10%
e) Approximately 1–2%

Question 9
Which mechanism of MI is able to best explain the effectiveness of the procedure?
a) Exploration and conflict resolution
b) Psychoeducation
c) Reinforcement of self-motivational statements
d) Positive relationship building
e) Confrontation

Question 10
Motivation is built through the patient naming their desires, abilities, reasons for change, and needs for change. Which acronym summarizes these aspects?
a) VARY
b) DARN
c) MARK
d) WILL
e) STEP