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BEHAVIOUR CHANGE STRATEGIES IN PRIMARY HEALTH CARE: EVIDENCE, EFFECTIVENESS AND IMPLEMENTATION LESSONS

Abstract. Patient behaviour change is one of the core clinical technologies of primary health care (PHC), directly influencing prevention, risk factor control, treatment adherence, and long-term outcomes in the management of chronic diseases. It is at the PHC level that smoking, hazardous alcohol consumption, unhealthy diet, insufficient physical activity, poor self-management, and low medication adherence are most commonly identified. At the same time, international practice convincingly demonstrates that the simple provision of information rarely translates into sustained behaviour change; clinically meaningful effects usually occur when behavioural support is embedded within the patient's routine care pathway and reinforced by repeated contacts, digital reminders, team-based care, and clear action algorithms.

The aim of this article was to synthesise international experience regarding patient behaviour change strategies in PHC, to identify approaches supported by the strongest evidence base, and to outline the conditions under which they are genuinely effective in everyday clinical practice. The analytical review was based on international clinical guidelines, systematic reviews, meta-analyses, and key randomised controlled trials addressing motivational interviewing, brief interventions, digital tools, group education, self-management, and multicomponent support models.

It was shown that brief interventions for smoking and hazardous alcohol use have a robust evidence base in PHC settings: very brief advice from a healthcare professional increases the likelihood of smoking cessation, while brief alcohol interventions are associated with reduced alcohol consumption after 12 months of

follow-up. Motivational interviewing retains clinical value but is not a universal solution: its effectiveness is moderate, context-dependent, and largely determined by practitioner training, contact intensity, and fidelity to the method. Digital tools, particularly SMS reminders, are most useful as enhancers of face-to-face counselling; stand-alone mobile applications more often improve self-reported adherence than 'hard' clinical endpoints.

For chronic conditions, structured group education and self-management programmes are promising; however, the greatest clinical gains are demonstrated by multicomponent models combining behavioural support with self-monitoring of indicators, action algorithms, repeated follow-up, and organisational implementation tools. The main barriers remain lack of time, competing clinical priorities, insufficient staff training, weak digital integration, absence of referral pathways for patients, and limited incentives for the care team.

It was concluded that the most effective model for PHC is a stepwise behaviour change approach: from universal screening and brief structured advice to the selective use of motivational interviewing, digital follow-up, group programmes, and more intensive forms of support.

Keywords: primary health care, behaviour change, motivational interviewing, brief interventions, digital interventions, treatment adherence, smoking, alcohol, self-management, implementation.

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СТРАТЕГІЇ ЗМІНИ ПОВЕДІНКИ У ПЕРВИННІЙ МЕДИЧНІЙ ДОПОМОЗІ: ДОКАЗОВА БАЗА, ЕФЕКТИВНІСТЬ ТА УРОКИ ВПРОВАДЖЕННЯ

Анотація. Зміна поведінки пацієнта є однією з базових клінічних технологій первинної медичної допомоги (ПМД), від якої прямо залежать

профілактика, контроль факторів ризику, прихильність до лікування та довгострокові результати ведення хронічних захворювань. Саме на рівні ПМД найчастіше виявляють тютюнокуріння, ризиковане вживання алкоголю, нераціональне харчування, недостатню фізичну активність, проблеми самоменеджменту та низьку прихильність до лікування. Водночас міжнародна практика переконливо показує, що проста передача інформації рідко трансформується у стійку зміну поведінки; клінічно значущий ефект зазвичай виникає тоді, коли поведінкова підтримка вбудована в рутинний маршрут пацієнта, підсилена повторними контактами, цифровими нагадуваннями, командною роботою та чіткими алгоритмами дій. Мета статті – узагальнити міжнародний досвід щодо стратегій зміни поведінки пацієнтів у ПМД, визначити підходи з найкращою доказовою базою та окреслити умови, за яких вони є реально ефективними у повсякденній клінічній практиці. Матеріалом для аналітичного огляду слугували міжнародні клінічні настанови, систематичні огляди, метааналізи та ключові рандомізовані контрольовані дослідження, присвячені мотиваційному інтерв'ю, коротким інтервенціям, цифровим інструментам, груповій освіті, самоменеджменту та багатокомпонентним моделям підтримки. Показано, що стійку доказову базу в умовах ПМД мають короткі втручання щодо тютюнокуріння та ризикованого вживання алкоголю: дуже коротка порада медичного працівника підвищує ймовірність відмови від тютюну, а короткі алкогольні інтервенції асоціюються зі зменшенням споживання алкоголю через 12 місяців спостереження. Мотиваційне інтерв'ю зберігає клінічну цінність, але не є універсальним рішенням: його ефективність є помірною, контекст-залежною і значною мірою визначається підготовкою фахівця, інтенсивністю контакту та відповідністю методиці. Цифрові інструменти, насамперед SMS-нагадування, є найбільш корисними як підсилювач очного консультування; ізольовані мобільні застосунки частіше поліпшують самозвітну прихильність, ніж «тверді» клінічні кінцеві точки. Для хронічних станів перспективними є структурована групова освіта і програми самопомоги, однак найбільший клінічний зсув демонструють багатокомпонентні моделі, що поєднують поведінкову підтримку з самоконтролем показників, алгоритмами дій, повторним спостереженням і організаційними інструментами впровадження. Основними бар'єрами залишаються дефіцит часу, конкуренція клінічних пріоритетів, недостатня підготовка персоналу, слабка цифрова інтеграція, відсутність клінічних маршрутів скерування пацієнтів та обмежені стимули для команди. Зроблено висновок, що для ПМД найбільш результативною є ступінчаста модель зміни поведінки: від універсального скринінгу і короткої структурованої поради до селективного застосування мотиваційного інтерв'ю, цифрового супроводу, групових програм і більш інтенсивних форм підтримки.

Ключові слова: первинна медична допомога, зміна поведінки, мотиваційне інтерв'ю, короткі інтервенції, цифрові інтервенції, прихильність до лікування, тютюнокуріння, алкоголь, самоменеджмент, впровадження.

Introduction. Primary health care (PHC) is the level of the health-care system at which behavioural risk factors most commonly first become the subject of clinical discussion. It is here that patients receive recommendations on smoking cessation, reducing alcohol consumption, improving diet, increasing physical activity, taking medicines regularly, self-monitoring key indicators, and engaging in preventive measures [1, 2]. For most common non-communicable diseases, these decisions are no less important than pharmacotherapy, since behavioural patterns largely determine the long-term trajectory of risk, disease progression, and the frequency of complications.

In the contemporary international literature, behaviour change is regarded not as a secondary “educational” activity, but as a structured clinical technology with its own mechanisms of action, tools, limitations, and indicators of effectiveness [1, 2]. However, the practical challenge is that, in routine outpatient practice, physicians and nurses rarely have access to lengthy counselling sessions. Therefore, particular importance is attached to approaches that are evidence-based, brief, scalable, and compatible with routine consultations.

International experience indicates that the best outcomes in PHC are achieved not through a single “magic” technique, but through the combination of several components: screening, brief advice, setting a specific goal, action planning, self-monitoring, feedback, repeat contact, and, where necessary, escalation to more intensive programmes [1, 2].

For this reason, the question of the effectiveness of behaviour change strategies requires more than the simplified answer of “what works?”; rather, it calls for a more precise analysis of which approaches produce clinically meaningful results, for which goals, in which patients, at what level of intensity, and under which organisational conditions.

Aim of the study. To synthesise international experience regarding patient behaviour change strategies in primary health care, to identify interventions supported by the most convincing evidence base, and to outline the conditions under which motivational interviewing, brief interventions, digital tools, group education, and multicomponent models achieve the greatest practical impact.

Materials and Methods. A narrative analytical review with a focused synthesis of evidence relevant to PHC practice was undertaken. Priority was given to international clinical guidelines, systematic reviews, meta-analyses, and pragmatic randomised controlled trials evaluating interventions for smoking, hazardous alcohol use, self-management of chronic diseases, adherence to pharmacotherapy, and control of cardiometabolic indicators [1–16].

The analysis primarily included approaches that could potentially be integrated into the routine workflow of primary care: very brief advice, brief behavioural interventions, motivational interviewing, SMS reminders and other digital tools, group education, algorithm-based self-monitoring programmes, and team-based support models. In interpreting the findings, consideration was given not only to the presence of statistically significant effects, but also to their magnitude, clinical relevance,

duration of follow-up, feasibility of implementation in real-world PHC settings, and barriers to implementation.

This review does not claim the status of a formal systematic review with a fully reproducible search strategy and assessment of the risk of bias for each included source. Nevertheless, it was constructed according to the principle of prioritising the highest levels of evidence and is intended to provide a scientifically grounded basis for a subsequent full review article and for adapting the conclusions to the needs of PHC.

Results and Discussion. NICE guidelines consistently emphasise that sustained behaviour change is most likely when an intervention is not limited to one-off advice, but includes clear goal setting, planning of specific steps, self-monitoring, regular feedback, and social support [2]. In primary care terms, this means that the most effective approach is not an isolated communication technique, but a package of behavioural solutions embedded within the patient care pathway.

From a practical perspective, any behavioural intervention should be assessed in two dimensions. The first is its clinical content: which techniques are used, how well they match the patient's problem, and whether they include goal setting, an action plan, and follow-up. The second is organisational delivery: who provides the intervention, how long it lasts, whether templates exist in the electronic system, whether referral pathways and repeat contacts are available, and whether audit and reinforcement mechanisms for the team are in place [1, 2, 13–16]. Without this second component, even clinically appropriate counselling often remains episodic and fails to reach the required intensity.

Brief interventions have the most convincing evidence base for routine PHC practice. In the WHO 2024 guideline, very brief advice on tobacco cessation lasting from 30 seconds to 3 minutes is recommended as a core intervention for all users of tobacco products [1]. The meta-analysis underpinning this recommendation demonstrated an increase in rates of sustained abstinence compared with no advice (RR 1.17; 95% CI 1.07–1.27) [1]. This is fundamentally important for PHC, as it concerns an intervention that is brief, inexpensive, standardised, and scalable without substantially increasing consultation workload.

A similar level of evidence is observed for hazardous alcohol use. The Cochrane review by E.F.S. Kaner et al., which included 69 studies, demonstrated that brief interventions in primary care were associated with a reduction in alcohol consumption of approximately 20 g of pure alcohol per week after 12 months compared with minimal or no intervention [5]. Importantly, longer counselling formats generally showed no substantial advantage over a well-structured brief intervention [5]. This shifts the emphasis from the “length of the conversation” to its quality, consistency, and routine reproducibility.

Accordingly, in everyday PHC practice, a brief intervention should be understood not as improvised advice, but as a standardised micro-strategy comprising screening, personalised risk feedback, a brief recommendation, agreement on an achievable goal, and scheduling of repeat contact. This format is most compatible with the time and organisational realities of primary care practice [1, 5].

Table 1**Key Behaviour Change Strategies in PHC and Their Level of Practical Utility**

Strategy	Behavioural Goal	Main Effect	Type of Evidence	Practical Conclusion for PHC
Very brief tobacco advice	Smoking cessation	Increases rates of sustained abstinence; RR 1.17	WHO guideline + meta-analysis [1]	Should be routine for all tobacco users at every appropriate consultation
Brief alcohol interventions	Reduction of hazardous alcohol use	Reduces consumption by approximately 20 g of pure alcohol per week at 12 months	Cochrane review [5]	One of the best-evidenced PHC tools; standardisation of the consultation script is important
Motivational interviewing	Resolving ambivalence, increasing readiness to change	Positive but heterogeneous effects; outcomes depend on quality of delivery	Meta-analyses [3, 4]	Best used selectively, particularly for patients with low readiness to change
SMS support and digital reminders	Reinforcing smoking cessation and treatment adherence	RR 1.54 for smoking cessation; SMD 0.36 for adherence in type 2 diabetes	Cochrane review / meta-analysis [6, 7]	Effective as an adjunct to face-to-face counselling rather than a replacement
Group education and self-management	Improving self-monitoring skills in chronic conditions	Reduction in HbA1c and body weight in some programmes; effect varies	Systematic review / RCTs [10, 11]	Most appropriate for type 2 diabetes and other conditions requiring repeated education
Multicomponent models	Sustained behaviour change and improved clinical indicators	Greatest clinical effect when support, action algorithms, and follow-up are combined	Pragmatic RCTs [12, 13]	It is the combination of components, rather than any single technique, that produces the greatest benefit

Note. In PHC settings, the best outcomes are usually achieved not through the isolated use of a single technique, but through its incorporation into a stepwise model of patient support.

Motivational interviewing (MI) occupies an important, albeit more selective, place among behavioural strategies in PHC. Its principal value lies in addressing ambivalence – a situation in which the patient simultaneously recognises the need for change while remaining inclined to postpone action. In the classical meta-analysis by S. Rubak *et al.*, positive effects of MI were demonstrated for body mass index, total cholesterol, systolic blood pressure, and certain indicators of alcohol consumption, whereas no convincing advantages were shown for HbA1c or the number of cigarettes smoked per day [3].

A later Cochrane review on smoking cessation demonstrated probable benefit from MI, but the magnitude of effect remained moderate, and the results were heterogeneous depending on the population studied, intensity of contact, and quality of implementation [4]. This leads to an important practical conclusion: MI should not be

regarded as a universal substitute for brief interventions. It is more appropriately used when simple directive advice proves insufficient and the patient requires deeper exploration of barriers, values, and readiness for change.

Equally important is the fact that the effectiveness of MI depends substantially on staff training and support for its use within the real clinical workflow. A qualitative implementation study in general practice showed that decisive factors included not only knowledge of the technique, but also practitioner confidence, availability of time, habitual use of MI within brief consultations, and team support [15]. Therefore, in PHC settings, motivational interviewing should be positioned as a tool for increasing intervention intensity that complements, rather than replaces, standard brief interventions.

Among digital solutions, the most convincing evidence base relates to mobile phone text messaging. The Cochrane review by R. Whittaker *et al.* demonstrated that SMS programmes increase the likelihood of sustained smoking cessation (RR 1.54), and when used in addition to other interventions, up to RR 1.59 [6]. For PHC, this has direct practical relevance, as SMS systems make it possible to maintain contact with patients between consultations without substantially increasing staff workload.

With regard to medication adherence, the findings are also positive, although less unequivocal. The meta-analysis by A.M. Belete *et al.* showed improved adherence to therapy in type 2 diabetes through SMS reminders (SMD 0.36) [7]. At the same time, a systematic review of mobile applications in chronic disease management indicated that effectiveness depends substantially on app functionality, the type of adherence scale used, and the clinical context [8].

The MedISAFE-BP study is particularly illustrative in interpreting the role of digital tools: the mobile application improved self-reported adherence, but did not provide a statistically significant advantage in systolic blood pressure [9]. Accordingly, digital solutions in PHC should not be viewed as a self-sufficient alternative to clinical counselling. Their optimal role is to enhance face-to-face interventions through reminders, monitoring, feedback, and maintenance of behavioural consistency between visits.

For patients with chronic conditions in whom behaviour change requires sustained education, structured self-management programmes and group education represent an important component. The systematic review by A. Steinsbekk *et al.* on group-based education for patients with type 2 diabetes demonstrated a reduction in HbA1c of 0.44% after 6 months and approximately 0.55% after 12 months, together with a small but statistically significant reduction in body weight [10]. For PHC, such programmes are valuable because they combine educational, behavioural, and supportive components without excessive individual resource demands.

At the same time, results are not entirely homogeneous. In the cluster randomised DESMOND trial involving patients with newly diagnosed type 2 diabetes, no significant difference in HbA1c was observed after 12 months, but improvements were noted in body weight, smoking status, and certain psychosocial indicators [11].

This has methodological significance: the effect of educational programmes should not be judged solely by a single biochemical marker, since early behavioural and psychosocial changes may be more sensitive indicators of success.

Thus, group education in PHC is most appropriate where the patient requires not one-off information, but repeated skills development: recognising problems, setting goals, self-monitoring, interpreting indicators, adapting to therapy, and mutual support. The best outcomes are expected when such programmes are not isolated from ambulatory care processes, but embedded within the overall patient management pathway.

The greatest clinical gains in PHC are most often demonstrated not by isolated techniques, but by multicomponent models that combine behavioural support with a clear clinical action algorithm. In the TASMINE-SR study, blood pressure self-monitoring combined with an individualised self-titration algorithm for antihypertensive therapy achieved an additional reduction in systolic blood pressure of 9.2 mmHg after 12 months compared with usual care [12]. The key feature of this model is that the patient functions not as a passive recipient of advice, but as an active participant in a standardised disease-control process.

A similar logic was confirmed by the five-country cluster ODHIN trial on the implementation of screening and brief alcohol interventions in primary care. It demonstrated that training and support for the clinical team, together with financial reimbursement, significantly increased rates of screening and delivery of brief interventions, whereas referral to an electronic intervention alone did not produce such an effect [13]. This again underlines that the clinical content of an intervention is necessary, but insufficient without an effective implementation architecture.

Accordingly, the most realistic model for PHC is a stepwise approach in which the brief intervention serves as the entry point, with subsequent escalation determined by risk level, readiness to change, and complexity of the clinical situation. For some patients, brief advice with repeat reminders will be sufficient; for others, motivational interviewing, a structured group programme, a self-monitoring algorithm, or team-based support may be required.

Particular attention should be paid to the question of organisational feasibility and implementation costs. For brief alcohol interventions in health-care settings, relatively low direct costs per intervention have been described; however, cost-effectiveness depends on patient coverage, integration of screening into workflow, and the actual frequency with which brief consultations are delivered [16]. From a management perspective, this means that even an inexpensive intervention loses value if applied only episodically or without a mechanism for scale-up.

Systematic reviews of barriers to implementing behaviour change strategies in PHC consistently identify the same problem areas: lack of time, competing clinical priorities, insufficient staff confidence in their own behavioural skills, absence of referral pathways, weak integration into electronic medical records, and limited incentives for the team [14–16]. In the systematic review by F. Rosário *et al.*, the

greatest burden fell within the domain of “context and resources”, indicating the critical role of the organisational environment [14].

By contrast, facilitators include standardised protocols, brief practical training with supervision, prompts within electronic systems, audit and feedback, team-based role allocation involving nurses, and repeat contact through simple digital channels [13–16]. Successful behaviour change in PHC depends not only on the communication skills of an individual physician, but on the design of the entire ambulatory care process.

Table 2

Typical Barriers to Implementing Behaviour Change Strategies in PHC and Practical Responses to Them

Problem Area	What Facilitates Implementation	Practical Solution for PHC
Lack of time during consultations; competing clinical tasks; multimorbidity	Brief standardised protocols; clear division of roles within the team	Integrate screening and brief advice into the standard consultation pathway; delegate part of the tasks to the practice nurse
Insufficient staff training in MI and brief interventions; low confidence in behavioural skills	Short practical training sessions with scenario-based practice; supervision	Train staff not in abstract theory of behaviour change, but in specific micro-scenarios for common clinical situations
Lack of referral pathways, repeat contact, and feedback	Group programmes, telephone or SMS follow-up, local referral algorithms	Create a simple list of next steps after a brief intervention: repeat consultation, reminders, group education, specialist service
Weak integration into electronic medical records; absence of prompts	Electronic templates, mandatory fields, automated reminders	Add brief templates to the EMR for recording risk factors, advice given, patient goals, and date of repeat contact
Lack of incentives for the team and low priority given to behavioural interventions	Audit, feedback, managerial reinforcement, and sometimes financial incentives	Evaluate not only process measures, but also screening coverage, frequency of brief interventions, and completion of follow-up

For primary care, the most evidence-based approach is a stepwise model of behaviour change. Its first level consists of universal screening for risk factors and very brief structured advice. The second level involves brief counselling with elements of personalised feedback, goal setting, action planning, and arrangement of repeat contact. The third level comprises the selective use of motivational interviewing, digital follow-up, group programmes, self-monitoring algorithms, or referral to specialised services.

For PHC in Ukraine, three directions appear particularly promising. First, the standardisation of brief interventions for tobacco and alcohol use as a mandatory element of routine consultations. Second, the use of simple digital channels – SMS, telephone contact, and electronic reminders – to maintain continuity of action between

visits. Third, the development of ambulatory self-management programmes for patients with type 2 diabetes, arterial hypertension, obesity, and poor treatment adherence.

It is fundamentally important that motivational interviewing and brief interventions should not be viewed as opposing approaches. In real-world PHC, they are not competitors, but components of differing intensity within a single system: the brief intervention establishes the basic standard of contact, whereas motivational interviewing is used when the patient demonstrates ambivalence, repeated unsuccessful attempts at change, or a need for more deeply personalised strategies.

Interpretation of the above data requires caution. First, different studies used non-uniform definitions of behavioural interventions, varying in intensity, duration, and component structure, which complicates direct comparison of effects. Second, part of the evidence derives from studies in mixed populations or outside strictly primary care settings, although these findings retain high practical relevance for PHC. Third, for digital interventions and educational programmes, a gap is frequently observed between improvements in self-reported outcomes and changes in clinical endpoints.

In addition, the available evidence base is largely concentrated on specific domains – tobacco, alcohol, diabetes mellitus, and arterial hypertension – whereas for some other behavioural challenges in PHC, particularly long-term dietary modification or support for complex lifestyle change in multimorbidity, findings remain less definitive. For this reason, the practical conclusions of this article should be interpreted as a model for prioritising solutions rather than as grounds for applying any single intervention uniformly to all patients.

Conclusions.

1. The most convincing evidence base in PHC relates to brief interventions for smoking and hazardous alcohol use; these should be regarded as a standard component of routine consultations.

2. Motivational interviewing retains an important role in work with ambivalent patients, but its effectiveness is moderate, context-dependent, and requires appropriate staff training and implementation support.

3. Digital tools, particularly SMS reminders, are most useful as enhancers of face-to-face counselling; stand-alone mobile applications more often influence self-reported adherence than clinical endpoints.

4. For chronic diseases, structured group education and self-management programmes are appropriate and may improve HbA1c, body weight, behavioural outcomes, and psychosocial measures.

5. The greatest clinical effect in PHC is demonstrated by multicomponent models combining behavioural support with self-monitoring of indicators, action algorithms, repeat follow-up, and team-based support.

6. The real-world effectiveness of behaviour change strategies is determined not only by the content of the intervention, but also by the conditions of implementation: time, resources, referral pathways, digital integration, audit, and incentives for the team.

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Дата першого надходження статті до видання: 28.04.2026

Дата прийняття статті до друку після рецензування: 13.05.2026