

Reporte de caso

Applying self-determination theory in clinical practice for successful long-term lifestyle change: lessons from a case report

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Abstract:

Adherence to lifestyle changes, such as physical activity and nutrition, is crucial for reducing morbidity and mortality from noncommunicable diseases. However, the quality of motivation plays a key role in sustaining these behaviors, particularly in clinical settings such as sports medicine and preventive healthcare. According to the Self-Determination Theory (SDT), motivation exists on a continuum ranging from amotivation (lack of intent) to extrinsic motivation—which varies in autonomy (external, introjected, identified, and integrated regulation)—and intrinsic motivation, where behavior is fully self-determined. The Behavioral Regulation in Exercise Questionnaire (BREQ-3), based on SDT, quantifies these motivational types and serves as a clinical tool for tailoring interventions.

A 29-year-old man with obesity sought telemedicine consultation for exercise and nutrition guidance. Initial BREQ-3 assessment revealed predominant introjected regulation (13/16 points), suggesting motivation driven by guilt and social expectations. A structured SDT-based intervention was implemented, integrating aerobic and resistance training, step-count targets, nutritional modifications, and behavioral strategies, specifically designed to shift motivation toward autonomous forms. At 14 months, a reassessment with BREQ-3 showed a shift towards intrinsic (+4) and integrated regulation (+3), along with decreases in introjected (-2) and external regulation (-5), reflecting improved alignment between exercise and personal values. Seventeen months after the intervention, despite the absence of professional supervision, motivation remained highly autonomous, with maximum scores in intrinsic regulation (16/16) and high scores in integrated regulation (13/16), indicating sustained behavior change.

This case underscores the clinical utility of BREQ-3 in assessing and guiding motivation-based interventions. The observed transition from controlled to autonomous motivation highlights the effectiveness of SDT-informed strategies in promoting long-term behavior change. These findings suggest that integrating motivation assessments into routine practice could enhance adherence across diverse clinical populations, ultimately optimizing patient outcomes in lifestyle interventions.

Keywords: Exercise, Motivation, Weight management.

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Resumen:

La adherencia a cambios de estilo de vida, como la actividad física y la alimentación, es fundamental para reducir la morbilidad y mortalidad asociadas a enfermedades crónica no transmisibles. Sin embargo, la calidad de la motivación desempeña un rol clave en la mantención de estas conductas, especialmente en contextos clínicos como la medicina del deporte y la medicina preventiva. Según la Teoría de la Autodeterminación (SDT), la motivación se distribuye en un continuo que va desde la desmotivación (ausencia de intención), pasando por la motivación extrínseca —la cual varía en su grado de autonomía (regulación externa, introyectada, identificada e integrada)— hasta la motivación intrínseca, donde la conducta es completamente autodeterminada. El cuestionario Behavioral Regulation in Exercise Questionnaire (BREQ-3), basado en la SDT, permite cuantificar estos subtipos de motivación, siendo una herramienta clínica útil para personalizar las intervenciones.

Un hombre de 29 años con obesidad consultó mediante telemedicina en busca de orientación en materias de ejercicio y nutrición. La evaluación inicial con BREQ-3 evidenció la predominancia de regulación introyectada (13/16 puntos), lo que indicaba una motivación guiada por la culpa y las expectativas sociales. Se implementó una intervención estructurada basada en los principios de la SDT, que integró entrenamiento aeróbico y de fuerza, metas de pasos diarios, modificaciones nutricionales y estrategias conductuales, con el objetivo de favorecer formas más autónomas de motivación. A los 14 meses, una nueva evaluación con BREQ-3 mostró un aumento en motivación intrínseca (+4) e integrada (+3), junto con una disminución en regulación introyectada (-2) y externa (-5), lo que reflejó una mayor alineación entre el ejercicio y los valores personales. Diecisiete meses después del alta, y en ausencia de acompañamiento profesional, la motivación se mantuvo altamente autónoma, con un puntaje máximo en motivación intrínseca (16/16) y un puntaje elevado en regulación integrada (13/16), lo que evidencia un cambio conductual sostenido.

Este caso resalta la utilidad clínica de BREQ-3 para evaluar y guiar intervenciones centradas en la motivación. La transición observada desde formas de motivación controlada hacia motivación autónoma refuerza la eficacia de las estrategias propuestas por la SDT para fomentar cambios conductuales a largo plazo. Estos hallazgos sugieren que integrar la evaluación motivacional en la práctica clínica habitual podría mejorar la adherencia en diversas poblaciones, optimizando así los resultados de las intervenciones sobre el estilo de vida.

Palabras claves: Ejercicio, motivación, control del peso

1. Background

Lifestyle changes are widely recognized as the ideal strategy to reduce morbidity and mortality from noncommunicable diseases such as cardiovascular disease, type 2 diabetes, hypertension, and obesity (1 – 5). Key components include physical activity, a balanced diet, and avoiding alcohol and drugs (6, 7). However, adherence to these changes remains a major challenge, often influenced by motivational factors that are rarely assessed or systematically addressed in clinical practice (8, 9). By addressing the factors that drive adherence, healthcare professionals could implement more effective and personalized interventions (10). Low adherence to exercise programs not only limits individual health outcomes but also contributes to increased healthcare costs and the burden of preventable diseases (11). This challenge is especially prevalent in populations with obesity, where motivation plays a crucial role in sustaining lifestyle changes.

Self-Determination Theory (SDT), rooted in psychology, provides a framework for understanding the quality of motivation and its role in shaping behavior and well-being. It posits that individuals have three fundamental psychological needs: autonomy (acting in alignment with personal values and choices), competence (effectiveness in tasks and challenges), and relatedness (feeling connected and valued by others). Fulfillment of these needs fosters emotional well-being, sustained

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adherence, and resilience, while their frustration can lead to stress, demotivation, and impaired well-being (12). Satisfying these needs is essential for the development of autonomous motivation, adaptive behaviors, and even a state of well-being. Conversely, when these needs are frustrated, individuals may experience amotivation, controlled forms of motivation, or even a decline in mental and physical health (13).

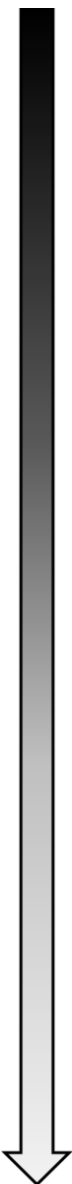
SDT categorizes motivation into three types: intrinsic motivation, extrinsic motivation, and amotivation. Extrinsic motivation exists on a continuum of autonomy with four subcategories: external, introjected, identified, and integrated regulation (Table 1). Amotivation reflects a lack of regulation, while intrinsic motivation is entirely internally regulated (13). This framework has broad applications, particularly in health and exercise, where physical activity offers well-documented benefits such as reduced mortality, improved cardiovascular and metabolic health and cancer prevention (14). Despite these advantages, adherence to exercise remains a major challenge, with dropout rates of 30% – 60% during the early stages, often due to difficulties in sustaining behavioral changes (11). These challenges highlight the need for strategies that promote long-term engagement.

From the field of research, tools such as the Behavioral Regulation in Exercise Questionnaire (BREQ) have been developed to quantitatively assess the different types of motivation associated with specific behaviors, such as exercise (15). Grounded in SDT, BREQ measures motivation quality based on the motivational continuum described by SDT. Currently in its third iteration (BREQ-3), the tool has undergone refinements to enhance its validity and reliability (16). BREQ-3 consists of 23 statements, each directly related to one of the six motivational regulations (amotivation, external regulation, introjected regulation, identified regulation, integrated regulation, and intrinsic motivation) (13). Respondents rate the degree to which each statement applies to them on a Likert scale from 0 (strongly disagree) to 4 (strongly agree), generating a detailed motivational profile that assigns each type of regulation a maximum score of 16 points (except for identified regulation, which has a maximum score of 12 points, as it includes only three statements instead of four). These properties make BREQ-3 particularly suitable for evaluating motivation in clinical settings, where understanding patient behavior is essential for tailoring interventions. The tool has demonstrated strong psychometric properties, including construct and convergent validity, internal consistency (Cronbach's alpha: 0.64 – 0.92), and a confirmed factorial structure across diverse populations (17).

However, while motivation has been recognized as a key factor for adherence in obesity interventions, meta-analyses have described its assessment in clinical settings primarily through qualitative approaches, such as Motivational Interviewing, rather than standardized quantitative tools (18). To date, the use of BREQ-3 in clinical practice remains limited, and, to the best of our knowledge, no case reports have employed it to objectively track motivational changes and guide interventions aimed at improving long-term adherence. For these reasons, the aim of this case report is to illustrate a clinical case that exemplifies how to implement a quantitative tool to measure types of motivation (BREQ-3) and what type of interventions can be carried out to improve this motivational profile and achieve long-term adherence in lifestyle changes.

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| | | | | | |
|------------------|-------------------------------|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Adherence | Amotivation | Non-regulation | | Absence of intention or autonomy to take up a given behavior. Paucity of competence, the conception that an activity is trivial or when there is no conjuncture perceived between a behavior and a desired outcome. | <u>Example:</u> An individual who has decided to join a gym but has reckoned that exercising is a waste of time because there is no way he will achieve his thin ideal. |
| | | Extrinsic motivation | External regulation | Controlled motivation | Act to carried out to get rewards, perform with social pressure, to avoid punishment or to please external expectations. |
| | Introjected regulation | | Act to evade guilt and shame and to reach ego-enhancements and feelings of worth. The commitment with the activity is partially controlled, the root of control or pressure is internal. | | <u>Example:</u> A bodybuilder who would feel ashamed and/or guilty if he was to skip a training. |
| | Intrinsic motivation | Identified regulation | Autonomous motivation | Action is personally valued or significant to own goals. The behavior remains instrumental as it is the usefulness of the activity over the enjoyment or interest what drives to participation. | <u>Example:</u> An exerciser who decides to engage voluntarily with spinning sessions at the gym because it feels personally important for his health. |
| | | Integrated regulation | | Action is identified and aligned with the own personality and belief. This happens when identifications have been lined up with the values, goals, and needs of the individual. | <u>Example:</u> A volleyball player who participates in the sport because it is part of his identity and shares his own values, goals, and needs. |
| | | Internal regulation | | Action is performed because of its inherent satisfaction. In this case, performing causes real interest and joy to the individual. | <u>Example:</u> An individual who involves voluntarily in activities for the interest and enjoyment that participation brings. Also, the related tasks often promote growth and learning. |

Table 1: Types of motivation, behavioral manifestations, and clinical examples

Representation of the motivational continuum proposed by Self-Determination Theory (SDT), ranging from amotivation to intrinsic motivation. Each type of motivation is associated with specific behavioral manifestations that influence adherence to physical activity. Clinical examples are provided to facilitate practical application in healthcare settings.

2. Presentation of subject and assessment

Adherence to lifestyle changes is a well-documented challenge, particularly in individuals with chronic conditions like obesity, where motivation often plays a pivotal role (11). This case illustrates how a personalized intervention, grounded in Self-Determination Theory (SDT), was used to address motivational barriers and improve long-term adherence.

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A 29-year-old man consulted a sports medicine professional via telemedicine, seeking advice on exercise and nutrition. The patient reported that since his early childhood he had suffered from obesity, had never achieved a normal body mass index (BMI), and had no previous relevant medical history. Within his family history, an uncle who died from complications of type 2 diabetes mellitus aroused his awareness and fear of developing the same disease.

A nutritional survey revealed a deficient protein intake of 0.8 g/kg of body weight, a high consumption of processed carbohydrates, low water consumption, and frequent alcohol intake (3–4 cans of beer, 2–3 times per week). Regarding physical activity, the patient walked around 2,000 steps/day and attended the gym for 60-minute sessions three times per week. Anthropometric measurements indicated a height of 183 cm, weight of 101 kg (BMI: 30.1 kg/m², Obesity Type I), and a waist circumference of 102 cm, resulting in a waist-to-height ratio of 0.56 (overweight).

To understand the patient's motivational profile, the Behavioral Regulation in Exercise Questionnaire (BREQ-3) was administered (Figure 1, September 2019). The results revealed a predominance of introjected regulation (13/16 points), reflecting a tendency to exercise primarily to avoid negative feelings such as guilt or shame. This form of controlled motivation is often associated with limited adherence, as it lacks alignment with intrinsic enjoyment or personal values. Lower scores in integrated (11/16) and intrinsic motivation (10/16) suggested a limited alignment between exercise behavior and personal values or enjoyment.

Based on these findings, the patient and the sports medicine physician collaboratively designed a multifactorial intervention to address his motivational barriers and lifestyle habits. The intervention was structured using evidence-based exercise and nutrition strategies, grounded in the physician's expertise in sports and exercise medicine. Additionally, principles from Self-Determination Theory (SDT) were applied as a conceptual framework to enhance long-term adherence by fostering autonomous motivation.

To ensure a patient-centered approach, the intervention was structured to satisfy the three fundamental psychological needs described in SDT:

- **Autonomy:**
The patient actively participated in decision-making, selecting preferred exercise modalities and setting personalized goals. The physician provided meaningful rationales for each lifestyle change, avoiding controlling language to reinforce intrinsic motivation.
- **Competence:**
Progressive training goals were established, incorporating positive feedback and incremental challenges to build self-efficacy. Adjustments were made based on objective assessments, ensuring sustainable progression.
- **Relatedness:**
Motivational discussions were integrated into teleconsultations, emphasizing the role of social support and addressing emotional eating patterns to reinforce self-awareness and commitment.

To operationalize these principles, the following interventions were prescribed and monitored by a sports medicine physician:

- **Aerobic exercise:**
Progressed from 2–3 sessions/week for 30 minutes at moderate intensity to 3 sessions/week for 60 minutes at vigorous intensity (performed at 10 km/h on a treadmill with 1% incline). This structured progression aimed to enhance cardiovascular fitness and foster competence.
- **Strength training:**

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Divided into three progressive phases (general resistance, muscular endurance, and maximum strength) to provide optimal challenge while ensuring gradual adaptation and technical proficiency.

- **Increment of daily steps:**

A 5,500 steps/day target was set to integrate physical activity into daily routines, promoting autonomy and reducing the perception of exercise as an isolated task.

- **Nutritional interventions:**

Personalized guidelines included a 500 kcal/day energy deficit, increased protein intake (1.4 g/kg to 1.8 g/kg), higher vegetable fiber consumption, reduced alcohol intake (1–2 days/week), and increased hydration (up to 3,000 ml/day). These adjustments were designed to support muscle preservation and energy balance while reinforcing the patient's sense of control over his diet.

- **Behavioral strategies:**

Mindful-eating techniques were introduced to help the patient identify emotional eating patterns, strengthening his capacity for self-regulation.

- **Supplementation:**

Whey protein was used to help meet protein targets, and creatine monohydrate (5 g/day) was incorporated in the second half of the intervention to optimize strength adaptations.

The intervention framework was aligned with SDT-based strategies, as synthesized in Table 1, which provides an overview of motivational constructs and their associated behavioral manifestations. This table, developed by the authors, integrates the principles proposed by Ryan & Deci, illustrating how different motivational profiles influence adherence strategies.

By incorporating motivational monitoring with BREQ-3, the intervention was dynamically adjusted based on objective changes in the patient's motivational profile, ensuring a personalized and evidence-based approach to lifestyle modification. The combination of clinical expertise in sports medicine and SDT principles allowed for a structured intervention that balanced scientific rigor with psychological support, ultimately facilitating the patient's transition from controlled to autonomous motivation.

After fourteen months, the patient showed significant improvements in his anthropometric and fitness parameters. His BMI decreased to 26.5 kg/m², and his waist circumference reduced to 89 cm. Cardiorespiratory fitness, estimated using validated formulas and data collected during the telemedicine consultations (18), improved from 43 mL/kg/min (50th percentile) to 51 mL/kg/min (90th percentile), reflecting enhanced physical competence and a significant reduction in relative mortality risk (19). At this time, BREQ-3 was repeated, showing an increase of 4 points in intrinsic motivation and 3 points in integrated regulation, along with a decrease of 2 points in introjected regulation and 5 points in external regulation. Seventeen months after the intervention ended, BREQ-3 was administered again. The patient achieved the maximum score in integrated regulation (16/16), while maintaining high levels of intrinsic motivation (13/16), with further reductions in controlled forms of motivation. A comparative visualization of the motivational profile scores across the three BREQ-3 assessments is presented in Figure 1.

The subject provided oral and written informed consent for this case report. The study was conducted in accordance with the Declaration of Helsinki (20) and reported following the CARE guidelines (21).

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Title: Evolution of Motivational Profile Assessed with BREQ-3 Across Three Measurement Occasions

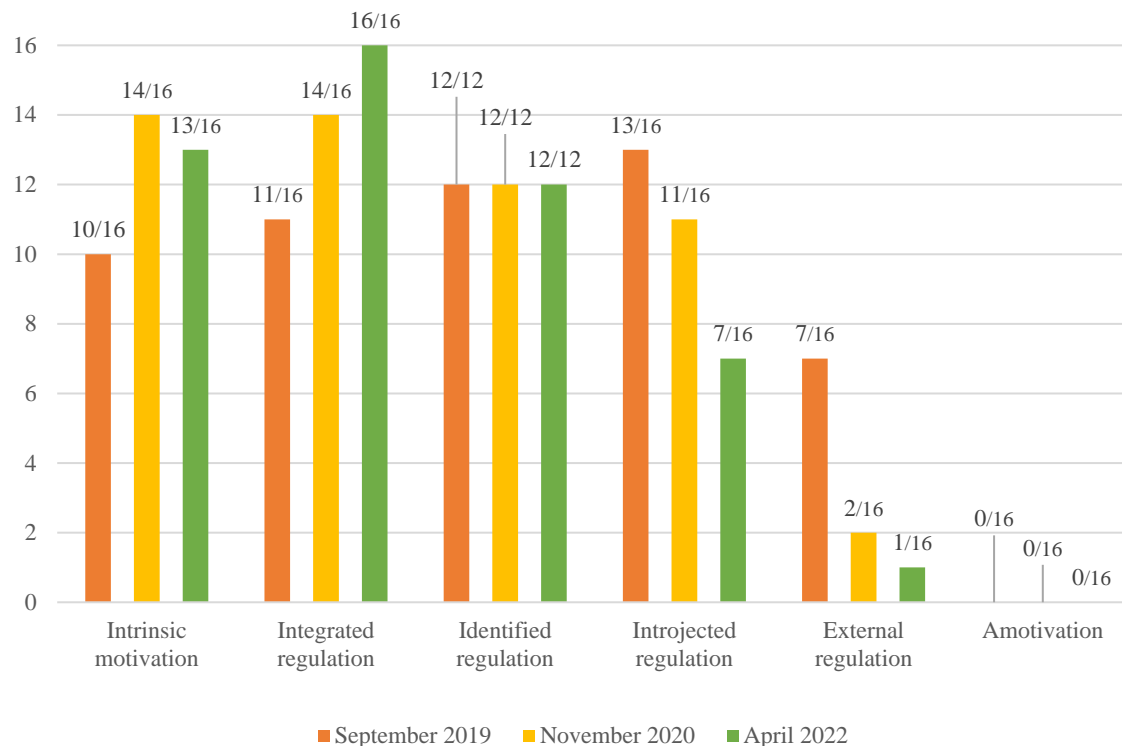


Figure 1: Graphical representation of scores obtained using BREQ-3 at three distinct time points during the clinical process: at the beginning of the intervention (September 2019), at the end of professional follow-up (November 2020), and 17 months after discharge (April 2022). The instrument assesses six types of motivation arranged along a theoretical continuum described by Self-Determination Theory (SDT), ranging from amotivation to intrinsic motivation, including the various forms of extrinsic regulation (external, introjected, identified, and integrated regulation). The figure illustrates a positive progression in the patient’s motivational profile, with sustained increases in autonomous forms of motivation and reductions in more controlled forms of regulation.

3. Reflections

The aim of this case report is to illustrate a clinical case that exemplifies how to implement a quantitative tool to measure types of motivation (BREQ-3) and how tailored interventions can improve motivational profiles and promote long-term adherence to lifestyle changes. To the best of our knowledge, no previous case reports have applied this methodology, making this an innovative approach to integrating motivational assessment into clinical practice. Apart from being a novel approach, this case also demonstrates the real-world utility of linking motivational theory with tailored interventions, showing sustained behavioral changes even in the absence of external supervision.

A key strength of this intervention was its dynamic and adaptive structure, facilitated by the repeated use of BREQ-3. The initial assessment revealed a predominance of introjected regulation (13/16 points), indicating that the patient exercised primarily to avoid guilt or shame, with lower scores in intrinsic (10/16) and integrated regulation (11/16). This profile guided the intervention design, allowing the physician to incorporate strategies that would enhance autonomous motivation by aligning exercise behavior with the patient’s personal values and interests.

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After 14 months, the motivational profile had evolved significantly. Intrinsic motivation increased by 4 points, and integrated regulation by 3 points, while introjected and external regulation decreased by 2 and 5 points, respectively. These findings reflect a shift from controlled to autonomous motivation, meaning that the patient no longer exercised due to external pressures but rather because he found it enjoyable and personally meaningful (23). The final assessment, 17 months after the intervention ended, demonstrated sustained progress, with intrinsic and integrated regulation reaching their maximum scores (16/16) and controlled motivations decreasing further. These findings underscore the effectiveness of combining SDT-based interventions with motivational monitoring over time.

This progression can be understood through the lens of Self-Determination Theory (SDT). The intervention was structured to address the three basic psychological needs outlined in SDT (see Table 2 for examples of proposed strategies to support each need):

- Autonomy was fostered through collaborative decision-making, ensuring that the patient had an active role in shaping his exercise and dietary choices. Providing meaningful rationales for each component of the intervention helped internalize the behavior.
- Competence was enhanced by setting measurable and progressive goals, such as gradually increasing exercise intensity and daily steps, which provided a sense of mastery and achievement.
- Relatedness was reinforced through regular telemedicine consultations, where consistent feedback, encouragement, and support reinforced the patient's sense of connection and value in the process.

Beyond improving the motivational profile, these strategies translated into significant clinical benefits, including reductions in BMI and waist circumference, as well as notable gains in cardiorespiratory fitness. The decrease in waist circumference to 89 cm, alongside healthier dietary choices and reduced alcohol intake, significantly lowered the patient's risk of cardiometabolic diseases, highlighting the broader health impact of motivationally tailored interventions (24).

A key finding from this case is the crucial role of BREQ-3 in guiding and adjusting interventions. The questionnaire's strong psychometric properties allowed for precise assessments of motivational changes, enabling a personalized approach that adapted to the patient's evolving motivational profile. By systematically monitoring these changes, the physician was able to intervene at the right moments, ensuring that motivation evolved from controlled to autonomous rather than stagnating or regressing.

While the outcomes are promising, some limitations must be acknowledged. The reliance on telemedicine, while effective in overcoming geographical barriers (> 6.000 km apart), limited the ability to perform direct metabolic assessments and objective measures of cardiorespiratory fitness (e.g., VO₂ max). Additionally, the geographical distance restricted the use of detailed anthropometric assessments such as skinfold thickness measurements, which could have provided a more comprehensive understanding of body composition changes. Including these metrics in future studies could enhance the depth of analysis in similar interventions (25).

This case underscores the need for more extensive studies to validate these findings and expand their applicability. Future longitudinal research could evaluate the persistence of motivational changes and their impact on long-term adherence. Furthermore, integrating motivational assessments such as BREQ-3 into routine clinical practice could enhance patient-centered care, allowing healthcare professionals to identify motivational barriers early and tailor interventions accordingly.

| Proposed Interventions | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Autonomy support | Competence support | Relatedness support |
| <ul style="list-style-type: none"> • Provide choice • Use intrinsic goal content • Acknowledge participant’s perspective • Use of non-controlling language • Provide a meaningful rationale | <ul style="list-style-type: none"> • Provide informational and positive feedback • Provide optimal challenge • Set challenging tasks • Promote task-involvement • Facilitate active participation in decision making • Provide structure | <ul style="list-style-type: none"> • Express authentic interest in the person • Encourage social support seeking from others • Listen and explore participants’ reasons • Provide opportunities to contribute or help others |

Table 2: Suggested Interventions to Support Basic Psychological Needs. Interventions proposed by Self-Determination Theory aimed at satisfying the three basic psychological needs: autonomy, competence and relatedness. These strategies foster the development of autonomous and sustainable motivation, supporting long-term behavioral change in clinical and health promotion contexts.

4. Conclusion

Assessing the motivational profile of a patient provides a comprehensive and objective perspective on the factors driving lifestyle changes. This case report demonstrates how the BREQ-3, aligned with Self-Determination Theory, can effectively guide tailored interventions and monitor motivational shifts over time. The observed transition from controlled to autonomous motivation underscores the potential of motivational assessments to foster sustained behavioral changes, even in the absence of external supervision.

Although these results are promising, they highlight the need for further research. Longitudinal studies and randomized controlled trials could establish the broader applicability and efficacy of motivational assessments in diverse populations. Integrating tools like the BREQ-3 into routine clinical practice could enhance adherence to lifestyle changes, contributing to better health outcomes and a more patient-centered approach in healthcare. By aligning clinical strategies with patients' motivational profiles, healthcare providers can improve adherence, foster sustainable health habits, and ultimately reduce the burden of preventable diseases on healthcare systems globally.

5. Acknowledgments and ethics

We acknowledge the work of the patient who inspired this case report. The subject had the opportunity to read the case study in its entirety before giving their written permission for publication. Informed consent was obtained in writing from the participant.

The authors declare no competing interests. The results of the study are presented clearly, honestly, and without fabrication, falsification, or inappropriate data manipulation. This study did not receive financial support from any institution.

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1. Jeet G, Thakur JS, Prinja S, Singh M. Community health workers for non-communicable diseases prevention and control in developing countries: Evidence and implications. *PLoS One*. 2017;12(7):e0180640. doi:10.1371/journal.pone.0180640
2. Doughty KN, Del Pilar NX, Audette A, Katz DL. Lifestyle Medicine and the Management of Cardiovascular Disease. *Curr Cardiol Rep*. 2017;19(11):116. doi:10.1007/s11886-017-0925-z
3. Kolb H, Martin S. Environmental/lifestyle factors in the pathogenesis and prevention of type 2 diabetes. *BMC Med*. 2017;15(1):131. doi:10.1186/s12916-017-0901-x
4. Valenzuela PL, Carrera-Bastos P, Gálvez BG, et al. Lifestyle interventions for the prevention and treatment of hypertension. *Nat Rev Cardiol*. 2021;18(4):251-275. doi:10.1038/s41569-020-00437-9
5. McCafferty BJ, Hill JO, Gunn AJ. Obesity: Scope, Lifestyle Interventions, and Medical Management. *Tech Vasc Interv Radiol*. 2020;23(1):100653. doi:10.1016/j.tvir.2020.100653
6. Lichtenstein AH, Appel LJ, Brands M, et al. Diet and Lifestyle Recommendations Revision 2006. *Circulation*. 2006;114(1):82-96. doi:10.1161/CIRCULATIONAHA.106.176158
7. Li Y, Schoufour J, Wang DD, et al. Healthy lifestyle and life expectancy free of cancer, cardiovascular disease, and type 2 diabetes: prospective cohort study. *BMJ*. 2020;l6669. doi:10.1136/bmj.l6669
8. Silva MN, Markland D, Minderico CS, et al. A randomized controlled trial to evaluate self-determination theory for exercise adherence and weight control: rationale and intervention description. *BMC Public Health*. 2008;8(1):234. doi:10.1186/1471-2458-8-234
9. Dorn C, Phillips S, Nicol S, Russell H, Guenther E. Motivations Behind Lifestyle Changes. *Am J Lifestyle Med*. 2021. doi:10.1177/15598276211015137
10. Grimaldi A. How to help the patient motivate himself? *Diabetes Metab*. 2012;38:S59-S64. doi:10.1016/S1262-3636(12)71536-7
11. Middleton KR, Anton SD, Perri MG. Long-term adherence to health behavior change. *Am J Lifestyle Med*. 2013;7(6):395-404. doi:10.1177/1559827613488867
12. Gillison FB, Rouse P, Standage M, Sebire SJ, Ryan RM. A meta-analysis of techniques to promote motivation for health behaviour change from a self-determination theory perspective. *Health Psychol Rev*. 2019;13(1):110-130. doi:10.1080/17437199.2018.1534071
13. Ryan RM, Deci EL. Intrinsic and extrinsic motivation from a self-determination theory perspective: Definitions, theory, practices, and future directions. *Contemp Educ Psychol*. 2020;61:101860. doi:10.1016/j.cedpsych.2020.101860
14. Miko HC, Zillmann N, Ring-Dimitriou S, Dorner TE, Titze S, Bauer R. Auswirkungen von Bewegung auf die Gesundheit [Effects of Physical Activity on Health]. *Gesundheitswesen*. 2020;82(Suppl 3):S184-S195. doi:10.1055/a-1217-0549
15. Bouffard L, Ryan RM, Deci EL. Self-determination theory: Basic psychological needs in motivation, development, and wellness. *Rev Quebecoise Psychol*. 2017;38(3):231. doi:10.7202/1041847ar
16. Teixeira PJ, Carraça EV, Markland D, Silva MN, Ryan RM. Exercise, physical activity, and self-determination theory: A systematic review. *Int J Behav Nutr Phys Act*. 2012;9(1):78. doi:10.1186/1479-5868-9-78

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17. Markland D, Tobin V. A modification to the Behavioural Regulation in Exercise Questionnaire to include an assessment of amotivation. *J Sport Exerc Psychol.* 2004;26(2):191-196. doi:10.1123/jsep.26.2.191.
18. Michie S, Ashford S, Sniehotta FF, Dombrowski SU, Bishop A, French DP. A refined taxonomy of behaviour change techniques to help people change their physical activity and healthy eating behaviours: the CALO-RE taxonomy. *Psychol Health.* 2011;26(11):1479-98. doi:10.1080/08870446.2010.540664
19. Nes BM, Janszky I, Vatten LJ, Nilsen TI, Aspenes ST, Wisløff U. Estimating Vo₂peak from a nonexercise prediction model: the HUNT Study, Norway. *Med Sci Sports Exerc.* 2011;43:2024–2030. doi: 10.1249/MSS.0b013e31821d3f6f
20. Ross R, Blair SN, Arena R, et al. Importance of Assessing Cardiorespiratory Fitness in Clinical Practice: A Case for Fitness as a Clinical Vital Sign. *Circulation.* 2016;134(24). doi:10.1161/CIR.0000000000000461
21. World Medical Association. World Medical Association Declaration of Helsinki: ethical principles for medical research involving human subjects. *JAMA.* 2013;310(20):2191. doi:10.1001/jama.2013.281053
22. Gagnier JJ, Kienle G, Altman DG, Moher D, Sox H, Riley D. The CARE Guidelines: Consensus-based Clinical Case Reporting Guideline Development. *Glob Adv Heal Med.* 2013;2(5):38-43. doi:10.7453/gahmj.2013.008
23. Ng JYY, Ntoumanis N, Thøgersen-Ntoumani C, et al. Self-Determination Theory Applied to Health Contexts. *Perspect Psychol Sci.* 2012;7(4):325-340. doi:10.1177/1745691612447309
24. Ross R, Neeland IJ, Yamashita S, et al. Waist circumference as a vital sign in clinical practice: a Consensus Statement from the IAS and ICCR Working Group on Visceral Obesity. *Nat Rev Endocrinol.* 2020;16(3):177-189. doi:10.1038/s41574-019-0310-7
25. Sheeran P, Wright CE, Avishai A, et al. Self-determination theory interventions for health behavior change: Meta-analysis and meta-analytic structural equation modeling of randomized controlled trials. *J Consult Clin Psychol.* 2020;88(8):726-737. doi:10.1037/ccp0000501