

# Factors influencing autonomy supportive consultation: A realist review

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## ABSTRACT

**Objective:** Gaining insight into contextual factors and mechanisms supporting or hindering autonomy supportive consultation and into outcomes of such consultations.

**Methods:** We conducted a systematic review using the realist synthesis procedure according to RAMESES guideline. A search was performed in PubMed, Embase, PsycINFO and Cinahl from inception to March 2019 using the search terms: 'autonomy' AND 'support' AND 'consultation' OR 'communication' AND 'intervention'. The review process including paper selection, quality assessment, full text reading for data-extraction was conducted by two researchers independently.

**Results:** Of 2792 articles, 18 met our inclusion criteria. Contextual factors influencing an autonomy supportive consultation were: work organization and the attitude of professionals. An overarching supporting mechanism for AS was relationship building. In addition, each phase of the decision-making process seems to need supporting mechanisms fulfilling patients 'specific psychological needs in that phase. The outcome of AS is higher levels of patient well-being.

**Conclusion:** Autonomy supportive consultation works under various contexts coupled with mechanisms that give rise to favourable-outcomes, of which relationship building, taking time and exploring patients' needs seem the most important.

**Practice implications:** The results of our review facilitate professionals to reflect on their autonomy supportive consultation skills, which could improve their autonomy supportive behaviour.

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## 1. Introduction

In the past forty years healthcare professionals have made a shift towards more patient-centred care, in which patients are better informed, empowered and encouraged to make their own choices regarding their health [1–3]. However in healthcare consultation, healthcare professionals still tend to focus on providing information instead of empowering patients and facilitating their autonomous decision-making during consultation [4].

According to the self-determination theory (SDT) [5], a macro-theory of human motivation, the quality of motivation is arranged along a continuum with autonomous motivation at one end and controlled motivation at the other end. Autonomous motivation means engaging in a behaviour out of one's own choice with no perception of internal or external pressure, the regulation underlying this being internal or autonomous. Autonomous self-regulation happens when a person finds a certain behaviour (e.g. active participation during consultations or healthcare decisions) important or engages in it out of interest. Controlled motivation, on the other hand, means making choices and showing behaviour for external reasons such as receiving praise. The regulation underlying this type of motivation is external [6]. For a person to autonomously engage in a behaviour, three basic psychological needs – autonomy, competence and relatedness – need to be fulfilled. The frustration of these needs is related to controlled motivation [6].

Based on the SDT and the literature, we hypothesized that when professionals provide autonomy supportive consultation, this can facilitate the fulfilment of the three basic psychological needs in patients, which could through more autonomous motivation stimulates more autonomous forms of self-regulated behaviour, enabling patients to make their own choices regarding their health as seen in Fig. 1 [7–9].

When professionals provide autonomy supportive consultation this can potentially facilitate autonomously engaged patient behaviour. However, autonomy supportive consultations do not necessarily result in autonomously engaged behaviour because providing autonomy supportive consultation is a complex intervention in which the setting, the professional and the patient interact.

It is known that autonomy supportive consultation has a positive effect on patient well-being, but the underlying mechanisms, why what works under what circumstances, are not known. [7,10].

The aim of this realist review is to a) determine how contextual factors influence the provision of autonomy supportive consultations, b) identify the mechanisms that support or hinder patients' autonomy in consultations and c) determine the outcomes of autonomy supportive consultations.

## 2. Methods

We conducted a systematic literature review using the realist synthesis procedure according to the RAMESES guideline. A realist

review method is used to study how and why an intervention works using relevant, heterogeneous evidence. Reviewers seek out which contextual factors influence the relevant mechanisms to generate the outcomes of interest. Mechanisms are defined as processes that generate these outcomes [11].

A search was performed from the inception of the databases to 20 March 2018 in PubMed, Embase.com, PsycINFO and Cinahl and was updated to 18 March 2019, in collaboration with a medical librarian (LS). Search terms used (including synonyms and closely related words) as index terms or free-text words: “autonomy” AND “support” AND “consultation” OR “communication” AND “intervention.” No language restrictions were applied. The full-search strategies for all databases can be found in the supplementary information.

For inclusion, the articles needed to relate to an intervention within a healthcare professional-patient or client interaction and needed to report on autonomy support or self-regulation or the fulfilment of psychological needs. Articles that relate to shared decision making were only included when they reported on autonomy support or self-regulation or the fulfilment of psychological needs. Both decision making and behavioural change were included as outcomes.

Articles that related to trainings for health professionals, e-health interventions and group consultations were excluded. In addition, books, editorials, case reports, posters, theses, conference abstracts, perspectives, letters to the editor and comments were excluded.

Titles and abstracts were screened for inclusion by two authors independently (JK and RK or EP). The first author (JK) and two co-authors (RK and EP) assessed the full texts of the remaining articles for inclusion and performed the final full-text reading of all included papers to extract the relevant text fragments from the articles. Quality assessment of the included papers on rigor and relevance was conducted by two authors independently. Rigor was defined as the method used to generate that particular piece of data being credible and trustworthy. Relevance was defined as how far the article can contribute to theory building of our intervention, autonomy supportive consultation. Relevance is related to providing relevant information for answering the research question. Thus, both rigor and relevance depend on the purpose of this specific realist review (Wong et al., 2013). In case of disagreement, the papers were discussed until consensus was reached (Table 1).

## 3. Results

A total of 2792 articles were screened; 127 full-text articles were assessed for eligibility of which 18 were included: three reviews, seven qualitative and eight quantitative studies. All included articles were written in English. A table was constructed containing the characteristics of the 18 included articles and their contribution in the form of text fragments for answering the research question. (Appendix 1. Table with characteristics of the

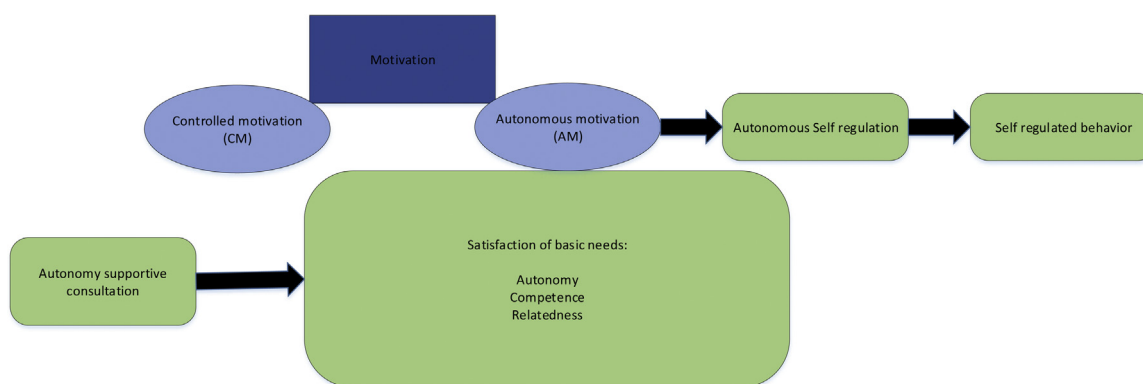
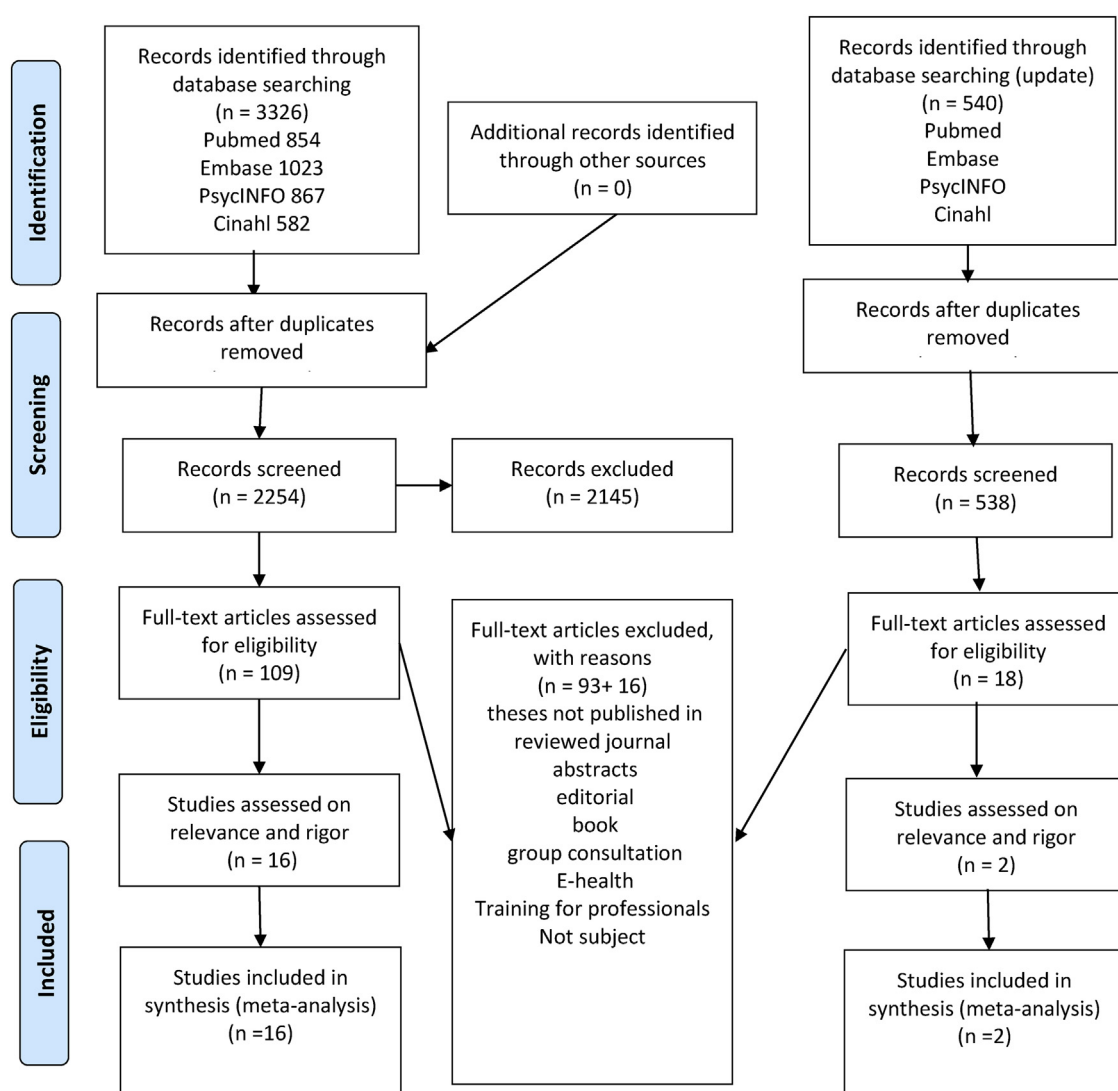


Fig. 1. Autonomy supportive consultation.

**Table 1**  
PRISMA-Flow-Diagram-Realist review Factors influencing autonomy supportive consultation.



included articles, described by context (setting, participants), mechanism and outcome (results)).

A broad range of patients or relatives of patients were included in the articles: patients after undergoing surgery, terminal patients, diabetics, patients from districts with overall low

socio-economic status, people at risk for cardiovascular disease, women with breast cancer, elderly (60 years or older), low-risk pregnant women and adult smokers. In addition, a wide range of healthcare professionals was included: registered nurses, family medicine clinicians, physicians, surgeons and oncologists. Most of

the included studies were performed in a primary care setting/general practice setting, but also studies conducted in hospices and hospitals were included.

A realist review considers the interaction between the context, mechanism and outcome. Therefore, first text fragments in our dataset were sought that described the influence of the contextual factors on autonomy supportive consultation. Second, text fragments were sought that could uncover the mechanisms for autonomy supportive consultation. Finally, text fragments were sought that described the outcome of the perceived autonomy support. All resulting text fragments comprised descriptions of a process or entity e.g. what was done by the healthcare professional to facilitate more autonomous forms of self-regulated behaviour.

The first data extraction resulted in 335 text fragments out of the 16 included articles. After sharing and discussing the results of this first data extraction with the full research team, we decided to split the text fragments that included more than one description. In this step, 23 extra text fragments were extracted, which resulted in a total of 358 text fragments.

After the additional literature search, 13 extra text fragments were extracted out of the two newly included articles. This resulted in a total of 371 text fragments on which the final analysis by the full research team was conducted. During the analysis, the text fragments were summarised and categorised in a context-mechanism–outcome table (Fig. 2). In the left column the contextual factors: patient, professional and organizational perspective are presented. In the middle the mechanisms that support or impede patients' autonomy are presented. In the top row the overarching mechanisms, below this the mechanism per phases. In the right column the outcomes of autonomy supportive consultation.

### 3.1. Context of autonomy supportive consultation

The contextual factors found in our review were classified at patient, healthcare professional and organizational levels. These factors are not part of the working mechanism but may interact with the intervention i.e. autonomy support during consultation.

**Patient perspective** - The patient can be limited by his/her physical condition, knowledge or psychological capacity [12–15]. If a patient is too ill to be actively involved, this limits the possibilities for autonomy support [13,15]. The support of important others, such as family or companions, could foster a patient's autonomy [15–19].

**Professional perspective** - The overarching contextual healthcare professional factor we found was competence, comprising knowledge, skills and attitude, whereby attitude appeared to be the most important aspect. Autonomy support requires a specific positive attitude to focus on the needs of patients and to work in a way that differs from the regular clinical care [8,18,20–22].

Another aspect of the professionals' attitude is taking sufficient time, the amount of time vary among patients and within the same patient over time [20]. It is important professionals tailor made their time to the specific patient for building a relationship and allow patients to take time they need to make their own decisions [17,20,22].

**Organizational perspective** - The daily routine with a rigid planning of regular care (e.g. the timing of tests and treatments) can be a contextual barrier for autonomy support as well as the traditional physical environment with a patient and a professional sitting opposite each other with a computer in between [13,15,20]. By way of contrast, a management team that adopts autonomy support as an overall strategy for good care can be stimulating for

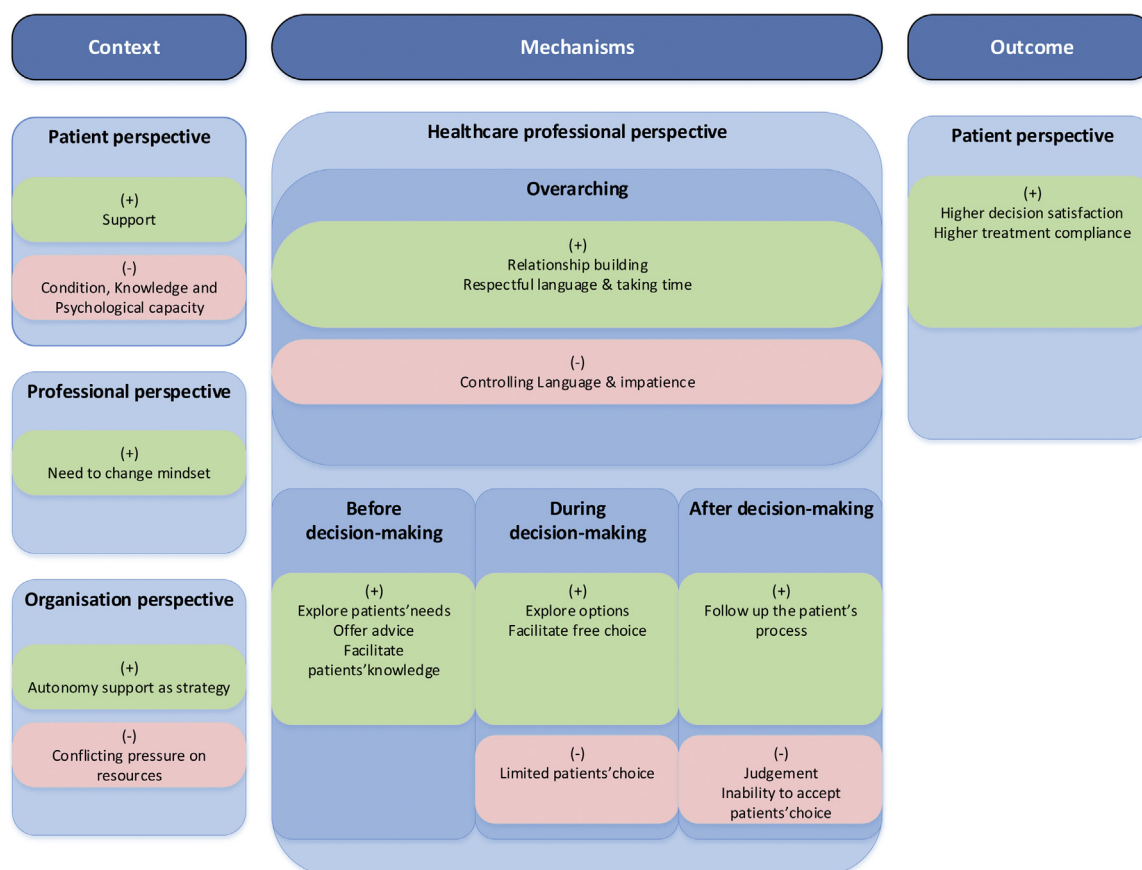


Fig. 2. Table results.

professionals to provide autonomy supportive care. This also applies to colleagues who endorse the concept of autonomy support. It makes it possible to respect patients' choice and to realize their wishes as a team [20]. The extent to which professionals are motivated for autonomy support determines the way in which they deal with barriers, such as time constraints or competing demands. Motivated professionals are better able to overcome obstacles in collaboration with colleagues e.g. respecting patients' choice and providing patient-centred care [13,20]. On the other hand, are there professionals with a different approach set rigid limits and restricting patients' choices unnecessarily. These professionals tend to be more concerned about meeting their own agenda, sticking to rigid routines or experiencing heavy workload [13].

### 3.2. Mechanisms that support patients' autonomy in consultation

We looked for mechanisms that support or impede patients' autonomy in relation to decision making in a consultation. Mechanisms were either overarching mechanisms or mechanisms relevant for a specific phase of the decision-making process.

#### 3.2.1. Overarching mechanism

The overarching mechanism to create an autonomy supportive climate during consultation was relationship building to create a necessary environment of trust [13,20,21]. This requests healthcare professionals who are really interested in their patients, not only in the information found in their file, but also in information from patients' family, other professionals and most important the patient their self to meet patients' need to be known and understood. Professionals need to become familiar with patients' concerns, expectations, beliefs, life aspirations and motivations and not only with the physical condition of the patient [13,17,20]. To acquire this information, activities, such as sitting next to the patient, asking open-ended questions and observing the behaviour of the patient, have been described [13,14,22].

In regard to overarching hindering aspects, the use of controlling language and impatience undermine the creation of an autonomy supportive climate for decision making [21,25].

We found that communication or decision-making tools e.g. 5x A-model, 5 x R-model or Motivational Interviewing (MI) could sometimes facilitate autonomy supportive consultation [8,16,18,23].

#### 3.2.2. Mechanisms relevant for a specific phase

**3.2.2.1. Before decision making.** Starting the consultation with exploring patient needs is essential for supporting autonomy, e.g. by asking the patient what he/she wants to achieve [8,16,18,17,21,22,24]. In addition, it is important to facilitate patients' need to know and understand their own situation, e.g. offering personalised non- threatening information or discuss learning goals with them [7,13,17,21,22,24–26].

**3.2.2.2. During decision making.** To optimize patients' choice during decision making, it is important to explore options through offering information about alternatives of which patients are not aware and discussing the pros and cons by sharing professional knowledge, suggestions and information about potential barriers [13,18,21,27]. Giving advice or recommendations is also important during the decision phase, although we found that some professionals think it is not appropriate to give advice within an autonomy supportive healthcare climate [14,17,23,15,26]. However, professionals can give advice in an autonomy supportive context when they give it without exerting pressure or expect patients to act accordingly and explicitly ask their patients how they feel and think about the advice [8,26]. Furthermore, most patients appreciate advice, in particular patients

with a lack of confidence to make their own decisions need advice or recommendations [28]. However, text fragments show that autonomy support is undermined by mechanisms that limit choice, e.g. offering restricted choice or pseudo choice, a healthcare professional may appear to be giving a choice, but it is deliberately limited in such a way that there is little true reasonable choice [13,16,23]. Last, it is important to recognize the complexity of patients' decision-making, which can be complicated by conflicting motivations or fears [14,20,21]. When patients hesitate, professionals tend to focus on providing more information. From an autonomy supportive perspective, it is more effective to recognize and address emotional issues that could account for patients' hesitation [13,17,18].

**3.2.2.3. After decision making.** The communication between patients and healthcare professionals after decision making is of great significance for patients' feeling of empowerment. Respect for the patients' choice without positive or negative judgment strengthens the feeling of autonomy, while being judgmental weakens patients' autonomous self-regulation because it strengthens only their external motivation [8,13,17,21,22,25]. However, sometimes healthcare professionals are unable to accept patients' choices; they weaken the feeling of autonomy support, for instance by negotiating or persuading patients to change their mind [13]. Nevertheless, professionals' own preferences should remain separate, as for achieving true autonomy support it is important to make the maximum effort in realizing the patients' choices [8,13,17,22,25,26]. Furthermore, it is relevant for professionals to realize that after patients' decision making the autonomy support need to be continued. Professionals have to keep checking whether the provided care still fits on patients' preferences. Patients preferences could change depending on their personal circumstances [13,19,27].

### 3.3. Outcome of autonomy supportive consultation

Patients who perceived autonomy support were more actively involved in consultation and perceived higher levels of physical health and psychological well-being [12,25]. Patients in an autonomy supportive consultation experienced higher decision satisfaction and there was higher compliance for treatment or behaviour change [17–19,24,25,27,28]. While controlling behaviour of healthcare professionals may prompt quicker short-term changes, autonomy supportive change may take longer to become effective but is maintained better [26].

## 4. Discussion and conclusion

### 4.1. Discussion

To test our hypothesis that autonomy supportive consultation, can facilitate the fulfilment of the three basic psychological needs in patients, which could through more autonomous motivation stimulates more autonomous forms of self-regulated behaviour, enabling patients to make their own choices regarding their health.

The aim of this realist review was to a) determine how contextual factors influence the provision of autonomy supportive consultations, b) identify the mechanisms that support or hinder patients' autonomy in consultations and c) determine the outcomes of autonomy supportive consultations.

#### 4.1.1. Context of autonomy supportive consultation

Contextual factors, such as work organization and the attitude of the healthcare professionals, can stimulate or hinder the creation of an autonomy supportive climate during consultation. Contextual factors, such as competing demands on healthcare



professionals during their shift, specifically could have a negative impact on the mechanism “relationship building,” the most important overarching mechanism to provide autonomy supportive consultation.

#### 4.1.2. Mechanisms that support patients' autonomy in consultation

Both overarching and phase-specific mechanisms found in this realist review can be explained in relation to the theoretical concept of autonomy support based on the Self Determination Theory (SDT) as described by Ryan et al. [29]. This theory describes that when healthcare professionals fulfil the three basic psychological needs of their patients (autonomy, competence and relatedness), they offer autonomy support. This realist review found that not every need was equally important in every phase of the decision-making process. This is shown in Fig. 3 in which the original table results (Fig. 2) is combined with the basic psychological needs.

Autonomy is an important need to fulfil especially in the phases before and after the decision making. Autonomy, from the SDT perspective, means providing patients with as much choice as possible and desirable for the patient, which is in line with the text fragments found in this review. This is important not only before decision making but also after decision making, e.g. by realizing patients' choices. When after the decision making healthcare professionals persuading patients to make a different choice this can be perceived as negative feedback (e.g. your choice is not good enough; you cannot make a good choice). This can undermine patients' feeling of competence and thereby decrease their more autonomous forms of self-efficacy [29].

Facilitating patients' competence seems especially of importance in the phase before the decision making. Within an autonomy supportive climate, patient education is based on the principles of SDT whereby patients are actively involved in the knowledge-building process [32]. The professional actions found in this review, which were used to meet patients' need for competence and autonomy, show similarities with scaffolding. Scaffolding finds its origin in Vygotsky's developmental method and can be used to bridge gaps between what patients know and what they need to know to make their own decisions regarding their health. In an interaction between the patient (the 'learner') and the healthcare professional (the 'expert'), the patient learns what he cannot understand without the assistance of the expert. To do so, it is essential that the healthcare professional is aware of the actual knowledge and learning competence of the patient and then work further to receive a next level by [33].

According to this review, relatedness is the most important overarching need that must be fulfilled to provide autonomy support. This is in line with both the literature about Shared Decision Making (SDM) as SDT. Relationship building is the foundation to acknowledge the perspective and worldview of the patient, which is essential for supporting self-regulated behaviour and decision making [29]. To be able to facilitate patients' self-regulated decision making it essential professionals know what is most important to their patient. They need to know and understand them in their physical, psychological, social and spiritual dimensions to provide support tailor made to their patients' values and norms. This is specific essential for patients during the decision making process [29–31]. The text fragments

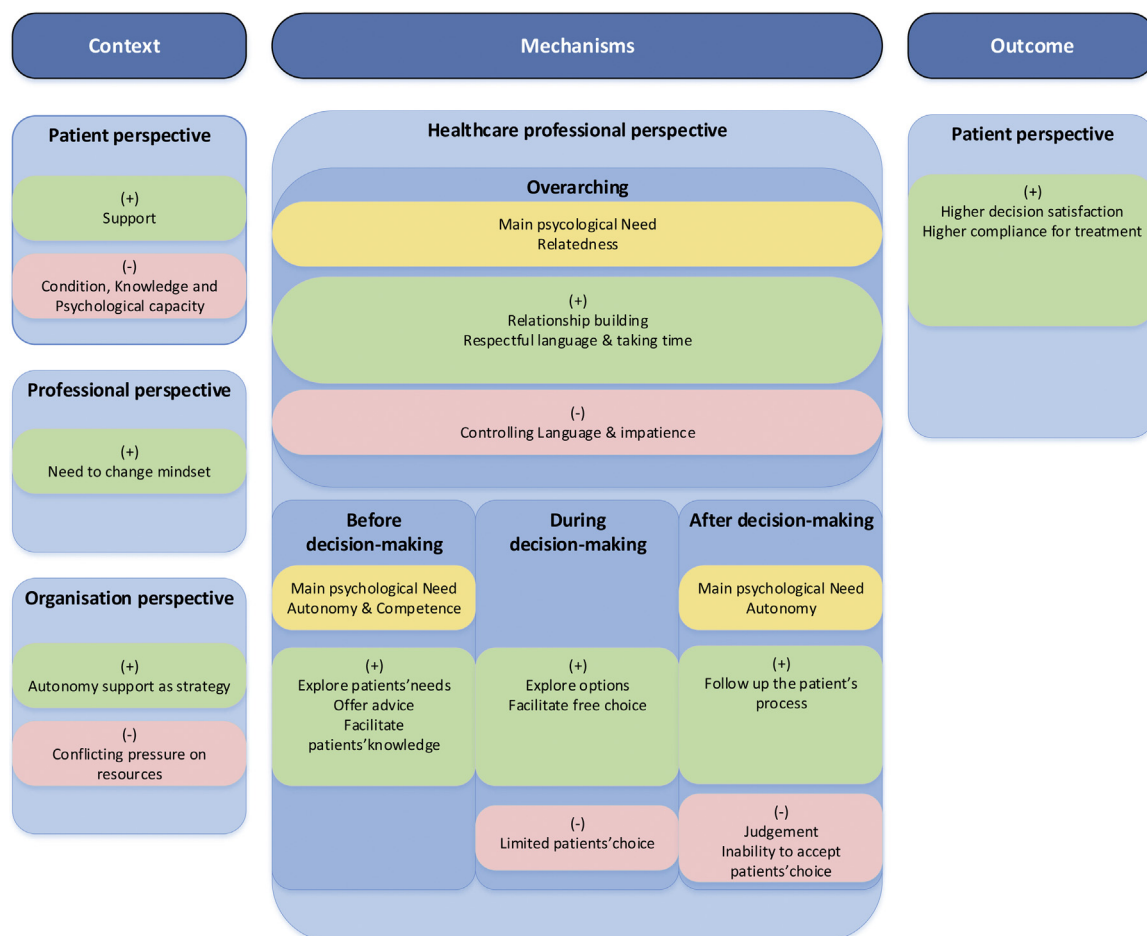


Fig. 3. Result review combined with the basic psychological needs.

found in the realist review show which concrete techniques professionals can use to facilitate relatedness e.g. talking about worries and taking time to listen but also which behaviour impedes relatedness e.g. interrupting patients.

#### 4.1.3. Outcome of autonomy supportive consultation

As an outcome, we found that autonomy supportive consultation seems suitable for all patients who were included in this realist review, e.g. cancer patients, pregnant women or diabetics, to help them make more autonomous choices in relation to their health.

#### 4.1.4. Integration autonomy support and SDM

As described above, the actions, behaviours and experiences of professionals and patients found in our review are linked to the SDT framework. This link makes it probably clearer for professionals for which purpose certain technique should be used to facilitate more autonomous forms of decision making by autonomy support. For this reason it can be useful to integrate autonomy support and SDM. This is in line with Vansteenkiste and Sheldon [10], who describe how the techniques of motivational interviewing (MI) and SDT can be integrated. They propose that MI works because the techniques used in MI could contribute to the satisfaction of the three basic psychological needs in SDT. To use these techniques effectively, it is essential that professionals understand the purpose for using this technique. In line with this reasoning Fig. 4 shows in the central

column the results of this review combined with the basic psychological needs and the steps of a model for SDM.

Fig. 4 helps professionals to understand which basic psychological needs should be fulfilled in each step of SDM. When healthcare professionals use techniques as described for SDM and MI instrumentally without understanding the underlying concept, they risk not achieving the higher purpose behind the use of these techniques [10]. This can be an explanation for our finding that communication or decision-making tools (such as 5x A-model, 5x R-model or MI) developed to aid professionals in patient-centred care sometimes facilitate autonomy supportive consultation, but not always [23]. The intention with which professionals talk, listen and act is important for patients to perceive autonomy support and empowerment. This includes not simply talk with patients about their plans but also about their personal values and own responsibility [34].

Another aspect that can explain why the techniques used in MI do not always facilitate autonomy support is that MI focuses more on the motivational quantity instead of quality. MI focuses on altering patient behaviour without taking into account the force that can drive this behaviour, i.e. the type of motivation [35]. Taking the motivational quality or type into account is important because only the more autonomous forms of motivation contribute to more autonomous forms of self-regulation [6,34]. When professionals facilitate controlled motivation by giving rewards

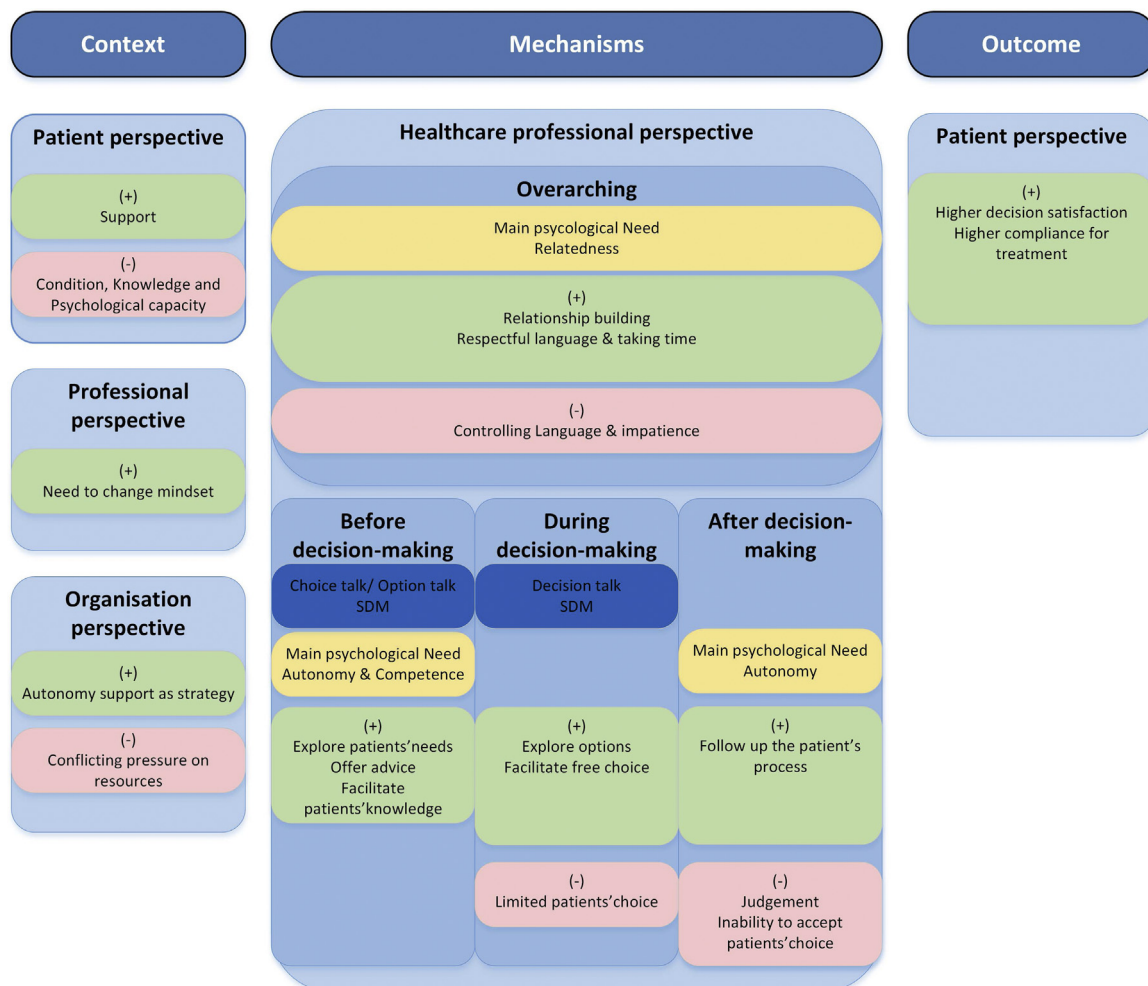


Fig. 4. Results review combined with the basic psychological needs and a model for SDM).

or praise, as found in our review, they thereby undermine autonomous motivation [6]. Such controlled motivation results in less active involvement and less effective outcomes, e.g. a temporary behavioural change [34].

#### 4.1.5. Strengths and limitations

The composition of our research team with healthcare professionals of different disciplines and various research departments is a strength of this study. It facilitates the discussions about the interpretation of our data and has contributed to the applicability of our results to consultations within several medical fields. Another strength is that we based our review on a sound methodology that allowed us to explore the context, mechanisms and outcomes to answer the research question.

In our review, there was a lack of studies with well-defined outcomes in relation to the context and mechanisms. The outcomes were reported in an abstract overarching way e.g. physical well-being or as concrete outcome measures e.g. increased physical activities. This impeded the understanding of the outcomes in relation to the mechanisms.

As described in our method section we excluded e-health autonomy supportive interventions although there are some recent interesting publications. We expect that especially the influence of spoken languages difference from online communication.

#### 4.2. Conclusion

This realist review shows that fulfilment of the three basic psychological needs by autonomy supportive consultation facilitates more autonomous motivation which support more autonomous forms of self-regulation enabling patients to make their own choices regarding their health. Within the mechanisms relatedness is the most important basic psychological need that should be fulfilled to facilitate patients in making their own health-related choices. Before patients' decision making process, the basic psychological needs of competence and autonomy also should be fulfilled. Patients' psychological need of autonomy must be supported even after they have made their decision. Because of the importance of our findings for facilitating patients in making their own choices we propose an integrated a model of SDM with the underlying mechanisms as found in our review and the theoretical foundation of SDT.

#### 4.3. Practice implications

Insight into the deeper layers of the decision making process could facilitate healthcare professionals to reflect on the way they empower patients and facilitate their autonomous decision-making during consultation. It could help them to understand how to reach the higher purpose behind the phases in the decision making process and utilize suitable mechanisms.

The figures constructed in this review could also be used in the education of healthcare students to provide insight in the self-determination theory in relation to more autonomous forms of self-regulation of patients.

Finally, based on our results healthcare professionals and healthcare organisations could adjust the process and content of their consultations and choose for autonomy support as an overall strategy for their patient-centered care.

##### 4.3.1. Suggestion for further research

We found in our included studies that controlling and authoritarian language can pose a threat to patient autonomy, but we found a little specific information on the autonomy supportive role of language in face to face communication. We suggest further research to explore the role of autonomy

supportive communication in consultation also in respect to the by patients perceived autonomy support.

#### Contributors

All researchers contributed to the design of the study and interpretation of the data. JK, RK and EP assessed the articles for inclusion and performed the final full text reading of all included papers to extract the relevant text fragments. Quality assessment of the included papers was conducted by JK, RK and EP. All researchers contributed to and approved the final manuscript.

#### Declaration of Competing Interest

None declared.

#### Appendix A. Supplementary data

Supplementary material related to this article can be found, in the online version, at doi:<https://doi.org/10.1016/j.pec.2020.04.019>.

#### References

- [1] M. Stewart, Towards a global definition of patient centred care, the patient should be the judge of patient centred care, *BMJ* 322 (2001) 444–445, doi: <http://dx.doi.org/10.1136/bmj.322.7284.444>.
- [2] F. Ryan, S. Cunningham, Shared decision making in healthcare, *Fac. Dent. J.* 5 (2014) 124–127.
- [3] M. Kaljouw, K. van Vliet, A. Grotendorst, A. Koeter, P. Spieker, Naar nieuwe zorg en zorgberoepen: de contouren, Zorginstituut Nederland, 2015.
- [4] L. Martin, S. van Dulmen, E. Spelten, A. de Jonge, P. de Cock, E. Hutton, Prenatal counseling for congenital anomaly tests: parental preferences and perceptions of midwife performance, *Prenat. Diagn.* 33 (2013) 341–353.
- [5] E. Deci, R. Ryan, *Intrinsic Motivation and Self-Determination in Human Behaviour*, Plenum, New York and London, 1985.
- [6] E. Deci, R. Ryan, Intrinsic and extrinsic motivations: classic definitions and new directions, *Contemp. Educat. Psychol.* 25 (2000) 54–67.
- [7] J.Y. Ng, N. Ntoumanis, C. Thøgersen-Ntoumani, E.L. Deci, R.M. Ryan, J.I. Duda, G. C. Williams, Self-determination theory applied to health contexts: a meta-analysis, *Perspect. Psychol. Sci.* 7 (2012) 325–340.
- [8] G. Williams, M. Gagné, R. Ryan, E. Deci, Facilitating autonomous motivation for smoking cessation, *Health Psychol.* 21 (2002) 40–50.
- [9] G. Williams, H. McGregor, D. Sharp, C. Levesque, R.W. Kouides, R.M. Ryan, E.L. Deci, Testing a self-determination theory intervention for motivating tobacco cessation: supporting autonomy and competence in a clinical trial, *Health Psychol.* 25 (2006) 91–101.
- [10] M. Vansteenkiste, K. Sheldon, There's nothing more practical than a good theory: integrating motivational interviewing and self-determination theory, *Br. J. Clin. Psychol.* 45 (2006) 63–82.
- [11] G. Wong, T. Greenhalgh, G. Westhorp, J. Buckingham, R. Pawson, RAMESES publication standards: realist syntheses, *BMC Med.* (2013).
- [12] F. Biley, Some determinants that effect patient participation in decision-making about nursing care, *J. Adv. Nurs.* 17 (1992) 414–421.
- [13] J. Bottorff, R. Steele, B. Davies, P. Porterfield, C. Garossino, M. Shaw, Facilitating day-to-day decision making in palliative care, *Cancer Nurs.* 23 (2000) 141–150.
- [14] M. Koelwijn-van Loon, A. van Dijk-de Vries, T. van der Weijden, Ethical issues in cardiovascular risk management: patients need nurses' support, *Nurs. Ethics* 21 (2014) 540–553.
- [15] J. Freytag, R. Street jr, G. Xing, P.R. Duberstein, K. Fiscella, D.J. Tancredi, J.J. Fenton, R.L. Kravitz, R.M. Epstein, The ecology of patient and caregiver participation in consultations involving advanced cancer, *Psycho-Oncol.* 27 (2018) 1642–1649.
- [16] J. Carroll, K. Fiscella, R.M. Epstein, M.R. Sanders, P.C. Winters, S.A. Moorhead, L. van Osch, G.C. Williams, Physical activity counseling intervention at a federally qualified health center: improves autonomy-supportiveness, but not patients' perceived competence, *Patient Educ. Couns.* 92 (2013) 432–436.
- [17] J. Kayser, S. Cossette, M. Alderson, Autonomy-supportive intervention: an evolutionary concept analysis, *J. Adv. Nurs.* (2013) 1254–1266.
- [18] S. Hardcastle, N. Blake, M. Hagger, The effectiveness of a motivational interviewing primary-care based intervention on physical activity and predictors of change in a disadvantaged community, *J. Behav. Med.* 5 (2012) 318–333.
- [19] A. van Hoekcke, C. Delecluse, A. Bogaerts, F. Boen, The long-term effectiveness of need-supportive physical activity counseling compared with a standard referral in sedentary older adults, *Aging Phys. Activity* 22 (2014) 186–198.
- [20] L. Fisher, H. Polonsky, D. Hessler, M. Potter, A practical framework for encouraging and supporting positive behavior change in diabetes, *Diabet. Med.* 34 (2017) 1658–1666.



- [21] V. Johnson, Promoting behavior change: making healthy choices in wellness and healing choices in illness- use of self-determination theory in nursing practice, *Nurs. Clin. North Am.* 42 (2007) 229–241.
- [22] M. Lavoie, D. Blondeau, I. Martineau, The integration of a person-centered approach in palliative care, *Palliat. Support. Care* 11 (2013) 453–464.
- [23] S. Champassak, D. Catley, S. Finocchiaro-Kessler, M. Farris, M. Ehtesham, R. Schoor, K. Goggin, Physician smoking cessation counseling and adherence to a clinical practice guideline, *Eur. J. Pers. Cent. Healthc.* 2 (2014) 477–484.
- [24] L. Warren, J. Rance, B. Hunter, Eat well keep Active: qualitative findings from feasibility and acceptability study of a brief midwife led intervention to facilitate healthful dietary and physical activity behaviours in pregnant women, *Midwifery* 49 (2017) 117–123.
- [25] G. Williams, R. Frankel, T. Campbell, E. Deci, Research on relationship-centered care and healthcare outcomes from the Rochester biopsychosocial program: a self-determination theory integration, *Fam. Syst. Health* 18 (2000) 79–90.
- [26] G. Williams, E. Deci, Activating patients for smoking cessation through physician autonomy support, *Med. Care* 39 (2001) 813–823.
- [27] J. Vanroy, J. Seghers, A. Bogarts, K. Devloo, S. de Cock, F. Boen, Short- and long-term effects of a need-supportive physical activity intervention among patients with type 2 diabetes mellitus: a randomized controlled pilot trial, *PLoS One* 12 (2017) e0174805.
- [28] K. Martinez, K. Resnicow, G. Williams, M. Silva, P. Abrahamse, D.A. Shumway, L. P. Wallner, S.J. Katz, S.T. Hawley, Does physician communication style impact patient report of decision quality for breast cancer treatment? *Patient Educ. Couns.* 99 (2016) 1947–1954.
- [29] R. Ryan, H. Patrick, E. Deci, G. Williams, Facilitating health behaviour change and its maintenance: interventions based on self-determination theory, *Eur. Health Psychol.* 10 (2008) 2–5.
- [30] G. Elwyn, D. Frosch, R. Thomson, N. Joseph-Williams, A. Lloyd, P. Kinnersley, E. Cording, D. Tomson, C. Dodd, S. Rollnick, A. Edwards, M. Barry, Shared decision making: a model for clinical practice, *J. Gen. Intern. Med.* 27 (2012) 1361–1367.
- [31] E. Smet, M. van Zwieten, S. Michie, Comparing genetic counseling with non-genetic health care interactions: two of a kind? *Patient Educ. Couns.* 68 (2007) 225–234.
- [32] R.A. Kusrkar, G. Croiset, O. Th, J. Ten Cate, Twelve tips to stimulate intrinsic motivation in students through autonomy-supportive classroom teaching derived from self-determination theory, *Med. Teacher* 33 (2011) 978–982.
- [33] M. Driscoll, *Psychology of Learning for Instruction*, Pearson Education, 2005.
- [34] E. Deci, R. Ryan, Self-determination theory in health care and its relations to motivational interviewing: a few comments, *Int. J. Behav. Nutr. Phys. Activity* 9 (2012). <http://www.ijbnpa.org/content/9/1/24>.
- [35] W.R. Miller, S. Rollnick, *Motivational Interviewing; Preparing People for Change*, Guilford Press, 2002.