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Irène Georgescu, Etienne Minvielle, Florian Scotté

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# Motivation of patients with chronic cancer during COVID-19 : A qualitative analysis

Irène Georgescu, PhD University of Montpellier, Montpellier Management, Montpellier, France. irene.georgescu@umontpellier.fr (corresponding author)

Etienne Minvielle, MD, PhD, i3-Centre de Recherche en Gestion, Ecole Polytechnique, CNRS, Institut Gustave Roussy, Villejuif, France. etienne.MINVIELLE@gustaveroussy.fr

Florian Scotté, MD, PhD, Institut Gustave Roussy, Villejuif, France. florian.scotte@gustaveroussy.fr

# Motivation of patients with chronic cancer during COVID-19: A qualitative analysis

### Abstract

# Purpose

Motivation to treat cancer and prevent its negative impact has been largely explored in a non-pandemic context. However, little is known about the motivation to comply with the treatment, especially during a pandemic. To fill this gap we have explored the individual and contextual factors impacting patients' motivation during the COVID-19 period using the integrated model.

#### Methods

We have conducted two qualitative studies before (study 1) and during the COVID-19 (study 2) period in a cancer centre. We respectively interviewed 30 and 22 patients with various chronic cancers in study 1 and also with COVID-19 in study 2. Data analysis was based on content analysis and grounded theory approach identifying the factors affecting patient motivations during both periods, and then comparing them.

#### Results

Our results show the mechanisms that allow patients to maintain their motivation despite the threats related to COVID-19. They underline the importance of respecting the rules and laws for patients' motivation.

#### Conclusion

Compliance with legislation fuels the psychological need of protection in patients, which is a key determinant of motivation in the context of the pandemic. Considering patients' self-regulatory activities to assess motivational factors, going beyond clinical aspects, to include organisational and quality-of-life-related aspects throughout their care pathway is crucial.

# Keywords

Chronic cancer, COVID-19, external factors, integrated model, motivation, organisation.

#### 1. BACKGROUND

Motivation is a multi-dimensional construct that is widely explored in the research literature. Recent studies have revised the approaches to investigating motivation based on analyses of social context, and self-concept, aiming to study the interactions between the dispositional, contextual, and behavioural factors of psychic life [1].

Motivation in cancer patients has been largely investigated in non-pandemic contexts in relation to compliance with treatment or maintenance of physical and professional activities [2-5]. For instance, in breast cancer, recent research has produced interesting results by scoping subjective factors (e.g., motivation, intentions, needs) and contingent facilitating factors influencing the decision of cancer patients to maintain their commitment to treatment [6-7]. These studies highlight that patients' needs seem to be associated with social support in that they express preferences around receiving help depending on the context [8]. Defined as a group of people who provide ongoing emotional support, information, and assistance, social support has been largely explored in the literature on cancer [9-10]. For instance, health care professionals, such as physicians, are considered a preferred source of psychological support [11]. On the other hand, studies on breast cancer point out that unsupportive social relationships can negatively affect one's self-representation, which is an important issue in health management [12].

Additionally, the role of anxiety, stress, and cancer-specific emotional issues cause patients to decline participation in interventions, in line with the psycho-cognitive studies identifying chronic illness-specific cognitive and decisional biases [13].

Many studies have highlighted the negative psychological impacts of the COVID-19 pandemic. A recent study focused on tracking the worry and emotional well-being of Italian citizens during the first wave of the pandemic, taking into account the changes in the lockdown scenarios [14]. The results demonstrate that the levels of worry significantly decreased throughout the first wave in Italy, while the levels of psychological well-being significantly increased.

Research conducted during the COVID-19 period has documented the negative impact of mental distress of patients with cancer [15-22]. Moreover, the role of personality traits in patients' adherence to cancer treatment during the pandemic has been demonstrated [23]. These studies also suggest that context affected patients with cancer during the pandemic. However, little is known about their motivation during this period. To address this gap, this research studied the individual and contextual factors impacting the motivation of patients with chronic cancer to adhere to their treatment before and during the COVID-19 pandemic. The research is important in terms of creating the environmental conditions that support patients' needs and addressing the socio-cognitive aspects in cancer treatment follow-up.

To identify these factors, we used an integrated model that combines the self-determination theory (SDT) [1] and the theory of planned behaviour (TPB) [24]. According to the SDT, when social environments are supportive of patients' basic psychological needs (i.e., autonomy, competence, and relatedness), individuals are more likely to exhibit self-motivation (i.e., act on behalf of their inherent interests, satisfaction, personal goals, and values) than controlled motivation (i.e., act in response to external contingencies and internal pressure). In addition, the TPB explains how the link between SDT-related motivation and a given target behaviour is mediated by social cognitive beliefs and intention. According to this theory, individuals are more likely to demonstrate adherence to health behaviours [25, 26] when their cognitive beliefs (i.e., attitudes, subjective norms, and perceived behavioural control) and intentions are well-oriented. Based on these principles, the integrated model has been widely applied in various health contexts, providing empirical evidence of the power of explanation and the ability to predict healthy behaviours [27-29].

Applied to our COVID-19 context, law and enforcement rules, such as social distancing measures, quarantine, and lockdown/travel bans, represent the external factors supporting the development of controlled motivation, while individual and contextual factors that relate to the need for autonomy, competencies, and social relatedness support the development of intrinsic motivation [30]. According to the SDT, individuals who are influenced by controlled motivation can adhere to advisory behaviour when external factors are present, but they may be more vulnerable in the long-term than those who develop intrinsic motivation. Social circumstances may also impact different motivational and social cognition factors. For instance, the shortage of personal protective equipment might impair an individual's sense of competence and perceived behavioural control [31]. Due to social isolation, the COVID-19 context can also alter existing relationships, limiting the expression of patients' needs for relatedness vis-à-vis their environment. Cancellation of some services and lockdowns can also negatively impact their need for autonomy, and the fears associated with COVID-19 can negatively impact their attitude as well as their perceived behavioural control. In addition, other factors may mediate the level of motivation by affecting cognitive beliefs, according to the TBP.

The current qualitative study, based on two studies conducted in a cancer centre, aimed to identify the individual and contextual factors impacting patients' motivations and cognitive beliefs before and during the COVID-19 period.

#### 2. METHODS

# 2.1. Study Participants

The participants in the first study were selected from among those who were followed up as part of a remote monitoring system for cancer patients undergoing oral therapy (i.e., the Capri programme in Gustave Roussy, Villejuif, France) [32]. The process for selecting the patients was based on the following steps: First, the nurse in charge on a unit identified some patients

with cancer who were undergoing oral therapy. Second, the nurse established a list of patients relevant for the study in the sense that they were able physically to respond to an interview. Third, the two researchers who received the list contacted the patients directly during their hospitalisation. The researchers explained the purpose of the research, and the patients were free to participate in the interview, with their anonymity guaranteed.

Faced with the COVID-19 pandemic, this procedure was adapted accordingly for patients with cancer who tested positive for the coronavirus [33]. The participants for the second study were selected between 2020 and 2021 among those following this programme. During the pandemic, patients had to follow the rules applied in the Ile-de-France (Paris) region where they lived: strict lockdown during mid-March and April 2020, coupled with the potential rescheduling of their hospital appointments over the same period; rescheduling of their appointments from June 2020 onwards; and delivery of lower-grade treatment throughout the year. Lockdown was in place from October 2020 to February 2021, except for the Christmas period, alongside a gradual return to rescheduling appointments (June 2021).

### 2.2. Data Collection

Two researchers (EM and IG) interviewed the patients face to face during the first study and via video or phone call during the second study. The first study cohort (July 2019 to February 2020) comprised 30 patients, and the second study cohort during the pandemic (September 2020 to June 2021) involved 22 patients. Three patients declined to be interviewed during the second study and did not offer any explanation. The semi-structured interviews (see Appendix 1 for the interview guide) lasted 1 hour and 15 minutes on average, with the first part dedicated to the patient experience, and the second part focused on the different facets of their motivation. All the interviews were recorded and transcribed (except for two patients who declined to be recorded). The study was approved by the French Data Protection Agency (CNIL) and an ethics committee (CPP Paris-Ile-de-France IV no. 2016/20SC, U.S. Department of Health and Human Services approved IRB no. 00003835). Informed consent was obtained from all participants prior to the interview.

# 2.3 Data Analysis

Throughout the study, we met on a monthly basis to continuously compare data and theories as new evidence emerged, in order to acquire a greater understanding of the observed phenomena [34, 35]. According to Strauss and Corbin's approach [36], we initially coded our data for the pre-COVID-19 episodes. Axial coding was used to translate the responses based on six categories of the integrated model, with vertical coding defining the contents of each factor. The original coding scheme reflected the factors for patients with cancer. This stable approach to identifying motivation became the baseline with which motivational and sociocognitive factors during the COVID-19 pandemic were compared. We replicated our coding approach during the pandemic period to compare the ways in which the motivational and socio-cognitive factors evolved. In addition, we coded the impact of COVID-19 on various factors that represented threats with a potentially negative impact. Questions or discrepancies

were resolved through regular discussion. Discussions on saturation led to the decision to end the analysis after interviewing 22 patients with cancer who tested positive for COVID-19.

#### 3. RESULTS

# 3.1. Study Sample

Gender, type of cancer, and type of treatment were similar between the participants of the qualitative study and those of the Capri program (Table 1).

Insert Table 1 around here.

# 3.2. Motivational Factors Before and During the COVID-19 Period

We present below the external factors which affected the needs of patients, according to the SDT, and how they were affected. For each type of need (autonomy, competencies, and relatedness), we expose how these factors affected individuals before the COVID-19 period, the type of threats perceived, and what supported individual motivation.

### **3.2.1. Autonomy**

First, some patients expected to be involved in all treatment-related decisions, while others accepted that they would not be involved in all the medical decisions. First, this lack of participation threatened the autonomy of some patients:

'They do not let us participate in the decision-making process. We are treated a bit like children. It is depressing'.

Second, dysfunctions, such as the rescheduling of appointments, lack of coherence in appointments, discrepancies in prescriptions, and lack of information during the care pathway undermined the patients' need for autonomy.

Third, different conditions in everyday life (e.g., administrative procedures) affected the patients' requirements for autonomy. For instance, one patient said:

'But I have my salary ... that definitely makes daily living more comfortable. I do not have to worry about material constraints; I stay focused on my cancer treatment'.

When the pandemic emerged, several threats challenged the motivation of the patients. The rescheduling of certain procedures as a result of their testing positive

for COVID-19 and the difficulty in getting an appointment was not accepted by some patients, who questioned their ability to be treated on the required dates or their freedom of movement between home and the hospital. They experienced this difficultly around appointments as limiting their opportunity to make choices in the way their treatment was organised:

'The scan should have been done in March, but as I got COVID-19, I was stuck ... I lost six months".

Faced with these threats, certain factors emerged as supportive of autonomy, such as the opportunity to consult with their doctor, the choice of dates to go to the hospital when required, and the independence to travel between home and hospital. The context of isolation also caused patients to adjust to certain aspects of daily living. Several patients highlighted their satisfaction with receiving financial assistance from their insurance fund or public aid in having shopping delivered to their home.

To sum up, we have identified three types of factors which affected individual autonomy before and during the pandemic: relationships between patients and health care professionals, the care pathway, and everyday life conditions. Patients were able to face and solve these threats by having the opportunity to resume contact with health care professionals in order to share treatment-related decisions, travelling to the hospital with assistance, obtaining additional financial resources, and receiving support from their neighbours.

# 3.2.2. Competencies

The study results show that patients' competencies can be affected by the quality of the information about treatment and its effects (e.g., from professionals, patient experts, or the Internet) and encouraging feedback from health care professionals.

The clarity of the messages conveyed by health care professionals (HCPs) also helped the patients. Some highlighted the importance of expert knowledge, which validated the information conveyed by the professionals. Others collected information on the Internet.

'When they carry out a fasting blood glucose test, there are numbers ... You are not a doctor. We do not know what it means. So, we go on the Internet to find out'.

However, other patients were wary of how reliable this information was:

'Unfortunately, you know what it is like on the Internet. It is a collection of information, each element being as questionable as the other ... I find it demoralising to see all this information and yet not know whether it is reliable'.

Second, support and guidance from professionals in response to patients' questions played a key role in meeting their need for competency while being treated for cancer:

'The nurse spoke to me about the doctor in these terms: "He was the best in the world and was going to operate on me".

The COVID-19 period impacted patients' competency needs with respect to information. Various patients reported having a lack of information about the virus. On the other hand, the amount of media-generated information about COVID-19 and the differing viewpoints of professionals kept the patients guessing. Discussions with physicians were also difficult during this period:

'With COVID-19, it is even harder to see my general physician. I want him to explain the impact of COVID-19 on my immune system ... and I do not know what to do'.

Several strategies were implemented in response to this dilemma. The patients initially focused on selecting what appeared to be credible information in this context. Internet sites they considered reliable and the trust they placed in a doctor interviewed on a radio station were elements deemed essential by various patients to increase their understanding of their clinical situation. These strategies often involved remote follow-up. Direct dialogue with the professionals was essential during a hospital stay:

'My oncologist reassured me when I had COVID-19. He came into my room and said, 'My job is to cure you'.

However, in most cases, the patients' need for competence was mainly addressed by remote follow-up. The latter facilitated more frequent discussions with the hospital teams during this period:

'Every day, I had a call or the option to exchange e-mails ... They advised me on how to deal with my symptoms ... I feel much more confident'.

Thus, during the pandemic, individuals coped by checking the quality of Internet information. Second, patients' perceptions of the reliability of doctors played a crucial role in their perceiving information as credible. Third, the need for competence is met by personalised feedback with remote follow-up. These responses support patient motivation based on their need for competencies.

#### 3.2.3. Relatedness

Three factors especially affected individuals' need for relatedness before and during the pandemic period: the role of a close environment, the role of the professional environment, and the role of the health professionals environment. During the pandemic, patients experienced threats in relation to the close environment and health professionals but not the professional environment.

Support from family and friends was often reported as meeting the patient's need for social proximity:

'I was with the father of my children. We went to all the appointments together'.

However, such proximity also had a negative impact. For example, a partner who expressed negative views about the treatment as well as regular discussions with doctors about their health status affected the patients in a negative way:

Mr. X (husband of a patient interviewed): 'Which doctor? (laughs). He is never around'.

'I keep everyone up to date on my Facebook page ... it saves me from repeating'.

Support was also provided through remote follow-up. This was a source of regular contact, which enabled the coordinating nurses to support the patient in moments of anxiety, as testified by a patient during social isolation:

'I had a call every day, or if there was a problem, I put it on the app. All of this reassured me'.

During COVID-19, the lockdown was perceived negatively by patients, as it isolated them from friends or family:

'We are isolated with COVID-19... I miss everyone'.

Since the COVID-19 context was marked by uncertainty and a lack of knowledge, HCPs tended to keep their distance from patients:

'Everyone who came into the room wore a double mask ... plus gowns, mobcaps, overshoes, and gloves. We felt like abnormal beings'.

Despite the context, continuous and remote dialogue was organised with family, friends, and colleagues. There were displays of solidarity as the patients' life situations led to unexpected closeness and, in some cases, to their adoption of new means of communication:

'My daughter, whom I do not see very often, visited regularly at this time; my neighbours always asked about me ... my two children called me regularly ... My son even introduced me to WhatsApp'.

Support by HCPs was seen as essential by many patients. However, their feelings differed in this respect, with one patient reporting anxiety about remote follow-up during COVID-19:

'All the symptoms are described, and the nurses call us every day. However, it is a double-edged sword, because at first it was very reassuring. Yet, at the same time, the nurses kept asking, "Are you okay? Are you breathing properly?" That made me anxious, and I had panic attacks'.

The study results point out that individuals found solutions for maintaining relatedness by developing new close relationships with neighbours and colleagues and by adopting new methods of communication. Remote follow-up also contributed to their maintaining a connection with health care professionals.

The results are summarised in Table 2.

(Insert Table 2)

# 3.3. Social-Cognitive Factors Before and During the COVID-19 Period

This section presents the external factors which affect the attitudes, subjective norms, and perceived behaviour control dimensions, following the TBP. For each type of dimension, we expose how these factors affected individuals before the COVID-19 period, the type of threats perceived during COVID-19, and what supported individual motivation in the pandemic period.

#### 3.3.1. Attitudes

Our results show that before COVID-19, patients' attitudes were affected by their assessment of their condition and self-assessment of their outlook, depending on their personality traits and spiritual practices.

First, patients assessed their health status in many ways. Depending on the clinical context, the lack of perspective on treatment outcomes sometimes had a negative impact:

'Actually, not knowing what will happen to me after the sixth chemotherapy session casts a cloud over everything'.

Second, personality traits of positivity, pessimism, or anxiety influenced one's attitude:

'When I know I am going to be hospitalised, I start crying, I do not know if I am going to come back'.

Third, religious beliefs helped some patients see the constraints of cancer in a broader perspective:

'I was a staunch Buddhist. Thus, I was in the moment. It helped me avoid additional stress'.

During COVID-19, threats concerning a patients' assessment of their condition and their outlook were identified during the interviews.

The COVID-19 period generated considerable anxiety. There was a fear of the unknown in the face of this new disease, as well as negativity and pessimism around the distressing symptoms experienced once the disease took hold:

'I was demoralised because I was very tired; I could not do anything'.

In this context, the patients minimised the impact of the virus compared to that of cancer. For instance, one patient thought they would die and was surprised to have beaten COVID-19:

'I was more worried about my cancer recurrence than I was about COVID-19. When you have cancer, you know that contracting COVID-19 is not the same thing'.

In addition, positive attitudes were strengthened by their treatment going well and their evaluation of the cancer treatment. One patient realised that they could continue their treatment in this context:

'I am optimistic, I saw that my appointments were still being scheduled, albeit without someone coming with me, but we continued to take care of the situation ... by being careful and rigorous, we managed things'.

Faced with these threats, patients tended to minimise the effects of COVID-19 in order to maintain their cancer treatment during the COVID-19 period.

#### 3.3.2. Subjective Norms

Before the COVID-19 period, the factors affecting patients' subjective norms included their comparison of their clinical status with patients experiencing other cancers and the relationships between patients and health care professionals.

Different patients sought support by comparing themselves to people with similar conditions. Patient associations played an important role in connecting patients with similar conditions:

'I knew two people with pancreatic cancer—they were gone in six months. It is very serious, and I know that I will not be cured ... but everyone is different'.

However, the HCPs sometimes provided reassurance that the patient's disease was no less curable than others:

'He had the same therapy as me. He had surgery in the same hospital, too. He did not have the same doctor. I had the boss ... that made me feel really good'.

The COVID-19 pandemic transferred these factors into a new context. For example, it could have been a doctor friend with a similar case, or a family member. In this new context, the search for points of comparison varied depending on the patients. While some were interested in understanding what was happening to patients in similar conditions, others expressed no interest, believing their case to be unique.

Thus, the perception of threats about factor patients' comparison of their clinical status based on findings patients in a similar situation regarding cancer and COVID-19 was face by more nuanced assessment. Additionally, patients paid close attention to the relationship with health care professionals who predicted positive outcomes for their patients.

#### 3.3.3. Perceived Behavioural Control

Before COVID-19, the perceived behavioural control of individuals was affected by the following factors: regular follow-up regarding treatment, adequate equipment for home care, the reputation of health care professionals and institutions, and the patients' ability to enjoy leisure activities.

First, the ability to follow up on their treatment affected patients' perception of their control of the situation. One patient expressed that a lack of coordination between professionals may have led to confusion in terms of what to do and which professionals to meet:

'I was lost with my home-based chemotherapy. For one week, I didn't understand whether I had the right equipment... I didn't understand anything, and that had an impact on me'.

Second, the reputation of the professional and the medical facility generated a feeling of being in the right place at the right time:

'I am treated at Gustave Roussy. Everyone knows that it is the best possible cancer centre ... It gave me a boost'.

Some services were also interpreted as comfort factors, such as the quality of the meals during a hospital stay:

'The meals are quite good ... We feel that everything is well thought-out to create the right scenario'.

Third, the ability to enjoy leisure activities appeared to help people control their daily life despite their cancer. It allowed them to 'distance themselves from' or 'get a grip on' the disease, in their words.

The COVID-19 period created uncertainty around access to HCPs. For example, one patient's chemotherapy session was cancelled due to a drop in their immune system due to the virus, while another patient's enrolment in a clinical trial protocol was challenged.

These levels of uncertainty could nevertheless be controlled by various means. For example, a patient who had lost his sense of taste and smell was able to regain control of the situation through remote follow-up:

'I had difficulty with meals, because I had no taste, no sense of smell, and was tired; the nurses who manage remote follow-up called a pharmacy across the street from me and faxed them a prescription to deliver food supplements'.

The delay in scheduling their treatment due to COVID-19 presented an opportunity for some patients. It encouraged them to better prepare themselves for the ordeal of treatment, which, in turn, allowed them to relate to their treatment in a more balanced way:

'I went from: "Damn, I might have to have chemotherapy" to "when all is said and done, if it allows me to be calm afterwards, why not?" Thus, the fact that there was a reflection period had some advantages'.

Finally, despite the lockdown, patients continued to enjoy leisure activities, such as reading, cooking, and music, which served as diversions from worrying about their condition.

In sum, the availability of follow-up treatments and remote follow-ups, having the time to accept one's treatment, and enjoying leisure activities during isolation all increased the sense of patients' perceived behavioural control during this period.

These results are summarised in Table 3. (Insert Table 3)

#### 3.4. The Positive Role of the Law Enforcement Rules

Most patients confirmed that they adhered to COVID-19 protective measures:

'I clean my key ring; I clean my door handle. Protecting myself is the best way to stay focused on my cancer and keep all the options open'.

This compliance may have led some patients to cancel procedures in order to avoid contaminating others. When they were isolated, this need for protection was in direct competition with the need for social proximity, but it nevertheless remained a priority for many:

'I shut myself away in a room. I separated myself from my wife and children. I did not want them to catch COVID-19, but I also had to protect myself'.

The failure of others to comply with barrier measures might also have restricted patients' movements. In this case, it was their need for autonomy that was challenged, leading to anger:

'But for me, it was the others, because people, in my opinion, were not careful enough. It was so stressful going shopping!'

Individual and collective compliance with barrier measures was therefore often put forward as a necessity, both to protect oneself and to prevent future constraints on one's autonomy due to an increasingly worsening situation.

# 4. DISCUSSION

This study investigated the factors that affected the motivation of patients with chronic cancer before COVID-19 and during the pandemic, when they became infected with the virus. Based on 52 interviews, our results highlight: (1) the need for protection supported by law reinforcement rules and (2) external factors which affect patients' motivation before and during the pandemic period.

First, our results show that the health regulations introduced during the pandemic played an important role in patients' motivation. The integrated model emphasises the need to promote factors that support intrinsic motivation. Law enforcement is perceived as a constraint affecting controlled motivation with limited effects on time [30]. Paradoxically, we showed that health regulations were seen positively by patients with cancer, as they protected them from others. To explain this acceptance of regulations by this population, we assume that it may express a new type of psychological need that supports motivation, which is the need for protection, as the conditions that facilitate rather than undermine intrinsic motivation are

different during a pandemic period. The need for protection can be contextual and support integrated regulation which 'occurs when identified regulations are fully assimilated to the self' [25]. These results may confirm studies demonstrating that the mitigation of the containment measures contributed to improving patients' psychological state six months after the beginning of the first lockdown [14].

Second, based on the integrated model theory, we identified the following external factors which positively or negatively affected patients before and during COVID-19: (1) the patient/HCP relationship, (2) the care pathway (i.e., the different organisational steps occurring during their treatment), (3) situations of daily life, (4) clear and comprehensive information about cancer and COVID-19, (5) support from family and friends, (6) assessment of their condition, (7) self-perception of their personality traits, (8) spiritual practices, (9) the ability to follow up on their treatment, (10) the reputation of professionals and the institution, and (11) the ability to still enjoy leisure activities.

Next, we extended the previous research on the role of social support with cancer patients. We found that patients' perceptions of social support from diverse sources affected patients' needs for competency, autonomy, and relatedness [7, 12]. The results show that patients' perceptions of social support can affect their needs and motivation in several ways. Moreover, we highlighted the importance of context in terms of patients' material environments. Our results point out the lack of financial resources as a threat to patients' autonomy and that obtaining external financial support to face daily life helps to reduce this threat.

Additionally, these factors can be mobilised in a specific and unexpected way by each patient. For instance, the use of media to understand cancer or COVID-19 met patients' competence needs to varying degrees. Some saw it as useful, while others rejected it because of their fear of fake news. Positive expressions of relatedness might also have had a negative impact on individuals who tried to limit social interactions. Different factors motivated individual patients and changed over time.

In sum, these results highlight the need to approach cancer patients' pathways in a broader perspective, including paying more attention to patients' daily life needs and cognitive beliefs [25].

# 4.1. Study Limitations

There are some limitations to this study. First, we focused on patients with cancer in extremely vulnerable situations as they contracted COVID-19, and no homogeneous cohort could have been designed in this respect. Same patients were not interviewed before and during the COVID-19 pandemic; therefore, we could not analyse the evolution of motivation for each person. Second, our work identified the specific role of factors during the COVID-19 pandemic leading to the need for personal and collective protection for vulnerable populations, including patients with chronic cancer. Further research should investigate this

aspect. Finally, semi-structured interviews provide more accurate and reliable assessments of behaviour than self-reporting measures [37]; however, responses can be subject to social desirability.

# 4.2. Clinical Implications

Some studies suggest including a self-regulation activity for affected patients in a motivational change programme [38]. Our results confirm the value of such an approach, highlighting the role of non-clinical activities, such as social prescribing [39]. The study also shows the positive perception of law reinforcement rules and compliance with COVID-19 protective measures by patients with cancer. Finally, this study recognises the importance of patients' idiosyncratic and dynamic motivational activity.

#### 4.3. Conclusion

Cancer patients' motivations to adhere to treatment have been largely explored in a non-pandemic context. However, little is known about their motivation to comply with their treatment during a pandemic. To fill this gap, we conducted two qualitative studies in a cancer centre: one before and one during the COVID-19 period. Our results highlight the mechanisms that allow patients to maintain their motivation despite the threats related to COVID-19. They underline the importance of respecting the rules and laws in supporting patients' motivation. These findings promote an understanding of evolving psychological mechanisms related to maintaining one's motivation in threatening situations.

#### REFERENCES

- [1] Deci EL, & Ryan RM. (1985) Intrinsic Motivation and Self-Determination in Human Behavior. New York: Plenum
- [2]Frikkel J, Götte M, Beckmann M, Kasper S, Hense J, Teufel M, ... & Tewes M (2020). Fatigue, barriers to physical activity and predictors for motivation to exercise in advanced Cancer patients. BMC palliative care, 19: 1-11.
- [3] Malmir S, Barati M, Jeihooni AK, Bashirian S, & Hazavehei SMM (2018). Effect of an educational intervention based on protection motivation theory on preventing cervical cancer among marginalized women in west Iran. Asian Pacific journal of cancer prevention: APJCP, 19:755.
- [4] Butow P, Laidsaar-Powell R, Konings S, Lim CYS, & Koczwara B (2020). Return to work after a cancer diagnosis: a meta-review of reviews and a meta-synthesis of recent qualitative studies. Journal of Cancer Survivorship, 14: 114-134.
- [5] Pinto BM, Maruyama NC, Clark MM, Cruess DG, Park E, & Roberts M. (2002). Motivation to modify lifestyle risk behaviors in women treated for breast cancer. In Mayo Clinic Proceedings 77: 122-129.
- [6] Chaix B, Delamon G, Guillemassé A, Brouard B, & Bibault J. E. (2020). Psychological distress during the COVID-19 pandemic in France: a national assessment of at-risk populations. General Psychiatry doi:10.1136/gpsych-2020-100349
- [7] Savioni, L., Triberti, S., Durosini, I., Sebri, V., & Pravettoni, G. (2022). Cancer patients' participation and commitment to psychological interventions: A scoping review. *Psychology & Health*, *37*(8), 1022-1055

- [8] Valle, C. G., Tate, D. F., Mayer, D. K., Allicock, M., & Cai, J. (2015). Exploring mediators of physical activity in young adult cancer survivors: Evidence from a randomized trial of a Facebook-based physical activity intervention. Journal of Adolescent and Young Adult Oncology, 4(1), 26–33.
- [9] Wondimagegnehu, A., Abebe, W., Abraha, A., & Teferra, S. (2019). Depression and social support among breast cancer patients in Addis Ababa, Ethiopia. *BMC cancer*, 19, 1-8.
- [10] Kelley, D. E., Kent, E. E., Litzelman, K., Mollica, M. A., & Rowland, J. H. (2019). Dyadic associations between perceived social support and cancer patient and caregiver health: An actor- partner interdependence modeling approach. *Psycho- Oncology*, 28(7), 1453-1460.
- [11] Arch, J. J., Vanderkruik, R., Kirk, A., & Carr, A. L. (2018). A closer lens: Cancer survivors' supportive intervention preferences and interventions received. *Psycho-Oncology*, 27(5), 1434–1441.
- [12] Sebri, V., Mazzoni, D., Triberti, S., & Pravettoni, G. (2021). The impact of unsupportive social support on the injured self in breast cancer patients. *Frontiers in Psychology*, 12, doi.org/10.3389/fpsyg.2021.722211
- [13] Savioni, L., & Triberti, S. (2020). Cognitive biases in chronic illness and their impact on patients' commitment. Frontiers in Psychology, 11, 579455
- [14] Ongaro, G., Cincidda, C., Sebri, V., Savioni, L., Triberti, S., Ferrucci, R., ... & Pravettoni, G. (2021). A 6-month follow-up study on worry and its impact on well-being during the first wave of COVID-19 pandemic in an Italian sample. *Frontiers in Psychology*, *12*, 703214.
- [15] Chen G, Wu Q, Jiang H, Zhang H, Peng J, Hu J, ... & Xie C. (2020). Fear of disease progression and psychological stress in cancer patients under the outbreak of COVID- 19. Psycho-oncology. 29: 1395–1398.
- [16] Curigliano G, Cardoso M. J, Poortmans P, Gentilini O, Pravettoni G, Mazzocco K, ... & Cardoso F. (2020). Recommendations for triage, prioritization and treatment of breast cancer patients during the COVID-19 pandemic. The Breast, 52:8-16.
- [17] Islam J. Y, Vidot D. C, & Camacho-Rivera M. (2021). Evaluating mental health–related symptoms among cancer survivors during the COVID-19 pandemic: an analysis of the COVID impact survey. JCO oncology practice, 17:1258-1269.
- [18] Košir U, Loades M, Wild J, Wiedemann M, Krajnc A, Roškar S, & Bowes L. (2020). The impact of COVID- 19 on the cancer care of adolescents and young adults and their well-being: Results from an online survey conducted in the early stages of the pandemic. Cancer, 126:4414-4422.
- [19] Romito F, Dellino M, Loseto, G, Opinto, G, Silvestris, E, Cormio, C, ... & Minoia, C. (2020). Psychological distress in outpatients with lymphoma during the COVID-19 pandemic. Frontiers in oncology, https://doi.org/10.3389/fonc.2020.01270
- [20] Sibley C. G, Greaves L. M, Satherley N, Wilson M. S, Overall N. C, Lee C. H, ... & Barlow F. K. (2020). Effects of the COVID-19 pandemic and nationwide lockdown on trust, attitudes toward government, and well-being. American Psychologist, doi: 10.1037/amp0000662.
- [21] Swainston J, Chapman B, Grunfeld E. A, & Derakshan N. (2020). COVID-19 lockdown and its adverse impact on psychological health in breast cancer. Frontiers in psychology, 11: 2033.
- [22] Xiang YT, Yang Y, Li W, Zhang L, Zhang Q, Cheung T, et al. (2020). Timely mental health care for the 2019 novel coronavirus outbreak is urgently needed. Lancet Psychiatry.7:228-229
- [23] Cheli S, Lam WWT, Estape T, et al. Risk perception, treatment adherence, and personality during COVID-19 pandemic: an international study on cancer patients. *Psychooncology* 2022;31(1):46-53.
- [24] Ajzen, I. (1991). The theory of planned behavior. Organizational behavior and human decision processes, 50:179-211.
- [25] Ryan RM, & Deci EL. (2000). Self-determination theory and the facilitation of intrinsic motivation, social development, and well-being. American psychologist, 55:68-78
- [26] Hagger MS, Chatzisarantis NLD. (2009). Integrating the theory of planned behaviour and self-determination theory in health behaviour: a metaanalysis. Br J Health Psychol, 14:275-302.
- [27] Jacobs N, Hagger M.S, Streukens S, De Bourdeaudhuij I, Claes N.(2011). Testing an integrated model of the theory of planned behaviour and self- determination theory for different energy balance- related behaviours and intervention intensities. Br. J. Health Psychol, 16: 113–134.

- [28] Chan, D.K.C, Fung Y.-K, Xing S, Hagger M.S. (2014). Myopia prevention, near work, and visual acuity of college students: integrating the theory of planned behavior and self-determination theory. J. Behav. Med. 37:369–380.
- [29] Chan DKC, Yang SX, Mullan B, et al. (2015) Preventing the spread of H1N1 influenza infection during a pandemic: autonomy-supportive advice versus controlling instruction. J Behav Med, 38:416–426.
- [30]Chan D.K.C, Keegan R.J, Lee A.S.Y, Yang S.X, Zhang L, Rhodes R.E, Lonsdale C. (2018). Toward a better assessment of perceived social influence: the relative role of significant others on young athletes. Scand. J. Med. Sci. Sport. 29:286–298
- [31]Ranney ML, Griffeth V, Jha AK. (2020) Critical supply shortages—the need for ventilators and personal protective equipment during the Covid-19 pandemic. N Engl J Med doi: 10.1056/NEJMp2006141.
- [32] Scotté, F., Minvielle, E., Mir, O., André, F., Barlesi, F., & Soria, J. C. (2020). A patient reported outcome platform, a useful tool to improve monitoring and effective management of Covid-19–positive patients with cancer. *European Journal of Cancer*, 132, 1-4.
- [33] Mir, O., Ferrua, M., Fourcade, A., Mathivon, D., Duflot-Boukobza, A., Dumont, S., ... & Minvielle, E. (2022). Digital remote monitoring plus usual care versus usual care in patients treated with oral anticancer agents: the randomized phase 3 CAPRI trial. *Nature Medicine*, 28(6), 1224-1231.
- [34] Glaser B. G, and A. L. Strauss (1967) The Discovery of Grounded Theory: Strategies for Qualitative Research. NewBrunswick, NJ: Aldine De Gruyter.
- [35] Miles, MB and Huberman A. M. (1994). Qualitative data analysis: An expanded sourcebook. Sage.
- [36] Strauss A, and Corbin JM (1990). Basics of Qualitative Research: Grounded Theory Procedures and Techniques. London: Sage Publications.
- [37] Osterberg L, Blaschke T, 2005. Adherence to medication. N. Engl. J. Med. 353: 487–497.
- [38] Hagger MS, Polet J, & Lintunen T. (2018). The reasoned action approach applied to health behavior: Role of past behavior and tests of some key moderators using meta-analytic structural equation modeling. Social Science & Medicine, 213: 85-94.
- [39]Drinkwater C, Wildman J, Moffatt S. Social prescribing. BMJ 2019 :364:11285.doi:10.1136/bmj.11285 pmid: 30923039