

PHYSICIAN/PATIENT RELATIONSHIP FOLLOWING HOSPITAL DISCHARGE – NEW METHODS OF THERAPEUTIC AND CARE CONTINUITY

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ABSTRACT

Healthcare organization aims to shorten hospitalization times, both to facilitate patient turnover and to avoid the risks of the nosocomial environment. Between March and September 2018, patients that were discharged after hospitalization for scheduled reconstructive breast surgery were given a portable device with the Dr. Link app installed, created to allow real-time communication with physicians. Patients and physicians completed a satisfaction survey on their experience with the use of the device. Analysis shows overall patient satisfaction in terms of improvement in relationships and quality of life. Physicians reported more responsible patient behaviour, better compliance, and earlier treatment of complications. Continuous interactive assistance can improve the discharged patient's quality of life and therapeutic path. However, the device risks becoming a negative tool if the health care professional has not made the proper initial emotional investment in the relationship, delegating the totality of the therapeutic relationship to the tablet.

Keywords: online communication, medical costs, care continuity, humanization

1. INTRODUCTION

In recent years, a number of studies have focused on patient support, which has shifted from the principle of “cure” to that of “care” in an effort to concentrate not only on the disease, but also on the subjective needs of the individual patient.

This approach follows the concept of treating the patient/disease entity as a whole, in line with the new bio-psycho-social model that is currently considered the standard path in health care. Based on this model, the disease is no longer managed as a mere biological entity, but it requires interaction among various professional figures that “cure” every aspect of the patient, from the specific disease to how it affects the patient's quality of life and his/her biological and social environment (Borgna 2017).

This complex interaction involving the biology of the disease, its psychological impact on the patient, and his/her social environment highlights the need to assemble

a multidisciplinary team to relieve the negative consequences of the illness as a whole.

Thus, it is within this context that the need for the “humanization” of medicine arises, requiring attention to be focused on the human being throughout each step of his/her treatment. A great deal of attention is therefore paid to the therapeutic strategies as well as to the social, psychological and emotional aspects.

Surgical therapeutic strategies often involve invasive surgical treatments that require a continuous adaptive effort to redefine the relationship between one's body and identity (Baldelli et al. 2016, Casabona et al. 2017).

Hospitalization itself represents, in fact, a further stressful event *per se*, and is often associated with personal discomfort and psychological trauma that might worsen the disease (Hashem et al. 2016). Moreover, separation from one's family and social environment, with its relative emotional and professional ramifications, might significantly burden the course of the scheduled treatments (Lopez et al. 2019, Lund et al. 2014, Rabow et al. 2004).

On the contrary, the current organization of the health system aims at reducing hospitalization as much as possible, promoting patients' turnover (thus allowing more patients to be treated), and decreasing both overall costs and iatrogenic risks resulting in a positive impact in terms of medico-legal controversies (Stabilini et al. 2013). In this context, it is essential to identify and develop new and more targeted strategies that might improve the interaction between the physician and the patient's environment/family. The effects of these interactions are known to be beneficial during the most critical phases of the disease, and on-going interaction may help prevent and/or allow early identification of psychological complications or iatrogenic morbidity (Epner et al. 2011, Back et al 2009).

Constant interaction between the discharged patient and his/her doctor also leads to an improvement in the quality of their relationship, as per the Italian Medical Ethics Code (2014) and the new Italian law on informed consent and advance directives (law n. 219/17) which places great value on the trust in the medical team involved in the

therapeutic course (Ciliberti and Gorini et al. 2018, Ciliberti and Alfano et al. 2018).

The study presented herein aims at identifying initiatives that could:

- promote strategies focusing on the centrality of the person and therefore maintain his/her personal status, dignity and perception of quality of life;
- develop technical improvements that might encourage continuous monitoring of the patient, even in a domestic environment, allowing for a safe and pain-free course of treatment;
- improve the quality of the relationships among discharged patients, relatives and health professionals.

In particular, the aim of this pilot study is to evaluate whether continuous telematic interaction between health professionals and patients can significantly increase humanization and consequently the quality of the relationship between patients and health care professionals (MacCabe et al. 2018), thereby possibly reducing morbidity and/or medico-legal issues (Franchelli et al. 2018). The study relies on information provided by a single app (Dr. Link), which is given to the patient at the time of his/her discharge from hospital.

2. MATERIALS AND METHODS

Between March and September 2018, 98 consenting patients who were hospitalized for scheduled reconstructive breast surgery were given a portable device (tablet) upon discharge with the Dr. Link app installed. Patients were provided with thorough instructions regarding the use of the app. They were free to use this tool, if and when needed, to communicate with the health care staff in real time. Dr. Link is an app that was created to allow real-time communication between patients and health care professionals by means of a real-time voice call or a personal chat or message. Therapeutic schedules can be set up, and postoperative follow-ups can be scheduled thanks to the creation of reminders. Lastly, it allows the patients to watch training videos for postoperative physical therapy (Tates et al. 2017).

WebRTC secure connection technology provided two-way, physician/patient video communication thus allowing greater human contact as well as the possibility to visualise the patient's sutures.

The device was returned when the patients came for their last postoperative check-up following the removal of the sutures. At that time, patients were asked to fill in a structured, anonymous questionnaire based on 18 questions about the usefulness of the device. An analogous anonymous questionnaire was also given to the health care professionals involved in the Dr. Link project to help understand the impact of the device on the clinical follow-up and on the social relationships between patients and health care professionals.

The results were evaluated and compared to each other

The study was fully approved by the Ethics Committee of the Liguria Region.

3. RESULTS

All 98 (100%) patients (females, mean age: 58 years) completed the structured survey. Education of the population: 35 patients held a degree of any kind, 41 a high-school diploma, 22 a junior high school certificate.

An analysis of the survey answers showed the following:

3.1 Patients' survey results

The instructions and explanations regarding the use of the device and the Dr. Link app were evaluated with regard to the degree of satisfaction and the results were as follows: very satisfied in 48 cases, quite satisfied in 30 cases, satisfied enough in 15 cases and not very satisfied.

The technology itself (confidence with the tablet + use of the app) was considered easy to use by 65 subjects, while 28 patients reported some difficulty only at the beginning, and 5 patients described the technology as "difficult to use".

With respect to the information they received via the Dr. Link system, 24 patients described the instructions as very clear, 28 as clear, 37 as clear enough, 9 as not very clear.

The procedure to be followed for contacting the health care staff was considered very easy in 16 cases, quite easy in 38 cases, easy enough in 42 cases and not very easy in 2.

Thirty-six patients reported a significant improvement in communication between the health care professional and the patient with the use of the device, 21 patients reported sufficient improvement, and 41 patients reported fair improvement.

Significant enhancement in the quality of communication between the health care professional and the patient was reported by 25 patients, good enhancement was reported by 35 patients, adequate enhancement by 28 patients, whereas 10 patients reported only little enhancement.

With regard to the question about whether the patient believes that monitoring constitutes a simple "facilitation" of the physician's professional obligations, 12 respondents answered "very much", 21 "much", 18 "enough" and 47 "a little".

When dealing with the perception of "safety", the device was described as offering a very strong "sense of safety" by 47 patients, a strong "sense of safety" by 49, and a sufficient "sense of safety" by 2.

Overall, 29 patients think that involving other professionals might significantly improve the efficacy of the technology (device + Dr. Link app), 28 thought it might have an impact on the system, and 41 felt it might be of some help in improving the system.

Thirty-four patients perceived the whole system as a tool that should "very much" be encouraged, 61 subjects replied it should "definitely" be promoted, and 3 said it should "somewhat" be promoted.

With regard to their postoperative course, 77 patients reported that the system had a positive impact, 1 reported a significant impact, 42 a good impact, 34 a fair impact, whereas 21 patients reported a poor impact.

When asked if they think that the whole system could have an impact on their self-responsibility after surgery, 38

patients answered “yes, very much”, 15 said “much”, 32 replied “enough”, and 13 answered “a little”.

Ninety-three patients ruled out the possibility of any negative effect on the postoperative course with the use of the device, whereas 5 patients answered that the possibility of negative effects was unlikely.

The degree of satisfaction regarding adherence to the project was considered very high (18 patients), high (15), sufficient (62), little (3).

A large majority of respondents believe that the tablet is useful to ensure continuation of hospital care at home: 42

Increased dialogue			Quality of communication		Support for self-empowerment	
Level of agreement	Pt (%)	MD (%)	Pt (%)	MD (%)	Pt (%)	MD (%)
A little	---	--	10 (10%)	--	13 (13%)	1 (8%)
enough	41 (41%)	--	28 (28%)	--	32 (32%)	2 (17.8%)
much	21 (21%)	12 (100%)	35 (35%)	8 (67%)	15 (15%)	9 (75%)
very much	36 (36%)	--	25 (25%)	4 (33%)	38 (38%)	--

Tool to be promoted			Positive health effects		Contribution to the continuity of care	
Level of agreement	Pt (%)	MD (%)	Pt (%)	MD (%)	Pt (%)	MD (%)
A little	3 (3%)	--	21 (21%)	--	2 (2%)	--
enough	--	--	34 (34%)	2 (17%)	18 (18%)	--
much	61 (61%)	12 (100%)	42 (42%)	9 (75%)	42 (42%)	11 (92%)
very much	34 (34%)	--	1 (1%)	1 (8%)	36 (36%)	1 (8%)

Satisfaction with tablet use			Will to continue tablet use		Extended use to other areas	
Level of agreement	Pt (%)	MD (%)	Pt (%)	MD (%)	Pt (%)	MD (%)
A little	3 (3%)	--	12 (12%)	1 (8%)	7 (7%)	--
enough	62 (62%)	2 (17%)	51 (51%)	8 (67%)	31 (31%)	2 (17%)
much	15 (15%)	8 (67%)	28 (28%)	2 (17%)	24 (24%)	9 (75%)
very much	18 (18%)	2 (7%)	7 (7%)	1 (8%)	36 (36%)	1 (8%)

3.2 Health care professionals

Twelve health care professionals (4 males, 8 females, all with medical degrees) answered the survey on the clinical impact of the system on the postoperative course of the patients.

All of them declared a significant increase in communication with the patient and an improvement (very much for 4 doctors, much for 8 doctors) in the quality of the communication.

The instructions and explanations regarding the use of the device and the Dr. Link app were considered—very understandable in 1 case, quite understandable in 7, understandable enough in 4.

The technology (confidence with the tablet + use of the app) was considered easily accessible by 11 doctors, while one described it as accessible enough.

replied that it was useful and 36 said it was very useful, while 18 patients responded useful enough and 2 responded not very useful.

When asked if they would like to continue using the system in their future treatments, 7 patients answered very much, 28 said much, 51 replied enough, and 12 said a little. When asked if they think that the system might be of some help even in other medical settings, the patients answered: very much in 36 cases, much in 24 cases, while 31 answered enough and 7 patient a little (Tables 1, 2 and 3).

All the physicians agreed on the need to extend the use of this technology to other health care professionals (nurses, psychologists, physical therapists, etc.), in order to improve the overall system.

Moreover, when asked for their opinion about the impact of the system on the patients’ postoperative course, 9 physicians reported a strong impact, 1 reported a very strong impact, and 2 reported a good enough impact. All doctors also reported a good impact of the technology on the patient-doctor relationship, and all agreed on the usefulness of the technology and the need to promote and spread it: 9 much; 1 very much; 2 enough.

Concerning the question of whether the new system might have a positive impact on the patient's personal self-responsibility following hospital-discharge, 9 of the physicians answered a great deal, 2 enough and 1 a little. Almost all of the physicians considered the monitoring system to be very useful in guaranteeing the continuation of hospital care at the patient's home (only 1 answered “quite useful”).

When asked if they would like to continue using the system, 1 physician answered very much, 2 much, 8 enough, 1 a little.

When asked if they think that the system might be of some help even in other medical settings, they answered: 1 very much, 9 much, and 2 enough.

The physicians believe that including other professionals might improve the usefulness of technology (device + Dr. Link app) very much in 2 cases and much in 10 cases. (Tables 4 and 5)

Level of agreement	Exhaustiveness of Information on the system		Initial difficulties		Involving other professionals	
	Pt (%)	MD (%)	Pt (%)	MD (%)	Pt (%)	MD (%)
A little	5 (5%)	--	65 (65%)	11 (92%)	41 (41%)	--
Enough	15 (15%)	4 (33%)	28 (28%)	1 (8%)	28 (28%)	--
much	30 (30%)	7 (58%)	5 (5%)	--	29 (29%)	10 (83%)
Very much	48 (48%)	1 (8%)	--	--	--	2 (17%)

Satisfaction with tablet use			Will to continue tablet use		Extended use to other areas	
Level of agreement	Pt (%)	MD (%)	Pt (%)	MD (%)	Pt (%)	MD (%)
A little	3 (3%)	--	12 (12%)	1 (8%)	--	--

enough	62 (62%)	2 (17%)	51 (51%)	8 (67%)	--	2 (17%)
much	15 (15%)	8 (67%)	28 (28%)	2 (17%)	--	9 (75%)
very much	18 (18%)	2 (17%)	7 (7%)	1 (8%)	--	1 (8%)

4. DISCUSSION

Studies have shown that good communication between health care professionals and patients might result in better clinical outcomes, reduced costs, an overall increase in patient satisfaction, and lower rates of physician burnout (Weng et al. 2011, Boissy et al. 2016). Improving communication is an ethical imperative and requires a multidisciplinary effort, adequate expertise, appropriate training, and the continuous development of new strategies and methods, even from a technological point of view.

An analysis of our results shows that there is overall satisfaction with the Dr. Link system, both by patients and by physicians. The satisfaction would appear to be in terms of an improvement in the doctor/patient relationship and in supporting the clinical course of the postoperative period.

The general view that such a system can improve communication is an important factor in the relationship, particularly in critical situations (Fughelli et al. 2019). In fact, dialogue is key in the care of the patient and implies a form of respect for him/her. Furthermore, dialogue can also prevent, or at least reduce, some types of behaviour that may be harmful to the patient's health.

Undoubtedly, the procedure that in some respects reminds us of online psychotherapy (the possibility to communicate through systems and applications) has some indisputable advantages (American College of Physicians and the Federation of State Medical Boards, 2013).

First of all, it makes access to one's "contact" simpler, even for individuals who would not normally have access (because they live too far away or are often away on business trips).

It also has an emotional advantage, in that it can be used by people who, on account of their personality structure and/or transitory psychopathological conditions, are not very prone to dealing with direct contact. It allows patients to gradually establish a "therapeutic" relationship based on their own needs and at their own pace, all the while respecting their privacy and their own personal characteristics. Furthermore, it also fulfils the need some patients have to stay in touch with the treatment centre because it makes them feel safer and better protected.

Undergoing a mastectomy is a traumatic event in a woman's life and the need for reassurance is a constant that is seen in those who suffer a traumatic event (Rubino et al. 2007). Using the tablet can play a role in the dynamics of de-escalating difficult relationships which may become even more complicated due to the outpouring of anger and irritability into the relationship (Nivoli et al. 2008; Nivoli et al. 2017). The tablet may act as an "emotional buffer" since establishing a space-time distance also creates an

emotional distance which allows emotions to be vented without increasing the tension in the relationship. Moreover, the use of the tablet contributes to building and maintaining a relationship of trust with the treatment centre since it provides answers without delays and/or uncertainties about timing. Particularly, the "perception of the availability" of the physician towards the patient constitutes a powerful therapeutic intervention in itself, generating positive effects (Gerretsen and Myers 2008, Dale et al. 2008).

This concept, which aligns with the fundamental ethical principles of care, should be key in the students' training and highlighted in everyday professional practice (Gulino et al. 2018).

In situations that can cause concern, the availability of a tool that allows the patient to interact with the physician promotes the immediate sense of control over the patient's health (Loretto et al. 2017). Furthermore, this system facilitates timely access by the patient to information provided directly by qualified staff rather than from potentially misleading sources (Ryan et al. 2016).

However, the high number of positive responses, both from patients and doctors, regarding the possibility that telemonitoring promotes self-empowerment suggests that the conscious involvement of the patient not only improves the relationship and the sense of trust towards the healthcare facility and the operators, but also the clinical outcome.

Moreover, the perception of safety related to the use of intelligent devices suggests that these tools are perceived as a way to provide more dedicated and qualified attention to the patient.

The possibility of supporting active involvement by the patient in their home-care can also prevent adverse events after discharge, with an important deflationary role in possible medico-legal disputes.

This consideration is in agreement with data indicating that the majority of patients declare they are satisfied with having participated in the home telemonitoring project. Both patients and physicians express a high degree of agreement with the need for this system as a tool to be promoted in other health sectors as well. This methodology could, in fact, be implemented by adding additional health control parameters that the device would be able to provide doctors.

The benefits that may be had from this type of "connection" between health professionals and patients therefore suggest the opportunity to implement these new information technology (IT) tools in clinical practice (Alkureishi et al. 2016), e.g. in chronic disease (Fornaro et al. 2008, Fornaro et al. 2009).

At the same time, it is essential that the use of these new technologies be supported by clear rules aimed at ensuring

confidentiality of the data, as well as the application of principles of professionalism by the operators in the new setting (American College of Physicians and the Federation of State Medical Boards, 2013).

In particular, increasing use of these tools in clinical practice suggests the need for proper training with regard to the fundamental ethical and deontological principles that have to govern their use, and which must already be provided at medical school (Gulino et al. 2018; Ciliberti et al. 2019).

The higher degree of difficulty the patients reported regarding the use of the device as compared to what was reported by the physicians may be explained by the greater experience and practice the medical staff has with IT tools. The risk is that of placing a communicative and empathetic distance between the physician and the patient.

A great deal depends on the initial communication regarding the meaning and functioning of the tablet. Communication must be explicit in stating that the role of the tablet is to add and not to replace. What is said in the initial communication will be decisive in how the patient eventually perceives the tablet.

Moreover, the tablet cannot replace the physician should the patient feel the need to speak to him/her directly, regardless of the option of using the tablet, otherwise there is the risk of feeling abandoned and/or neglected.

It must also be mentioned that there does exist the possibility of developing an addiction because this system has two characteristics that could lead to this occurrence. The first characteristic is reassurance (which can work as a reward circuit in addictions, especially in behavioural addictions). The other is the freedom one has in managing the system which itself has no particular limits except for subjective control that could be conditioned by the continuous (but not useful) need to stay in touch.

5. CONCLUSIONS

An analysis of the data highlights how continuous, interactive assistance by constant monitoring of the post-operative period can improve the patient's therapeutic course, promote the centrality of his/her role, improve the quality of his/her life and develop his/her sense of responsibility in the therapeutic process. Patients feel more looked after and therefore have a higher feeling of safety than in the standard post-discharge period.

In addition to these advantages, such assistance can reduce costs for the person being cared for and for his or her family in terms of unnecessary trips to the hospital.

Finally, as far as the healthcare system is concerned, this interaction and control method leads to results in optimization of the activity and a possible cost-savings, even thanks to the decrease in medico-legal litigation.

The benefits derived from the use of IT tools can be divided into three categories:

- Therapeutic results of the intervention
- Saving of health system resources due to the intervention (direct benefits)
- Changes in the use of resources by patients and family members (indirect benefits)

In conclusion, the tablet can be beneficial if the correct therapeutic value is assigned to it in advance through proper communication, and if its use is subject to monitoring. By linking patient care with organizing visits and check-ups, it responds to the principle of taking care of the patient.

However, it risks becoming a negative tool if the health care professional has not made the proper initial emotional investment in the relationship and has delegated the totality of the therapeutic relationship to the tablet.

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