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How to Apply Positive Psychology in Transfusion Medicine

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Abstract

Positive psychology in transfusion medicine represents voluntarism, altruism, motivation and service above self. Blood transfusion depends largely on the awareness and willingness of blood donors. Within living history blood has been surrounded by mysticism and curiosity resulting in a scientific interest. Psychology has from the beginning plaid an important often not well recognized role. Analyzing the vein-to-vein chain of organizational and operational events of the blood supply and transfusion medicine, there are several elements which demonstrate an applied positive psychology. But there are still elements where all over the world, professionals and others involved follow obediently the herd, showing attitudes and using terminology towards the public and potential donors which do not generate positive psychology. These attitudes and terminologies have a negative effect on the processes and feelings towards the blood supply and in particular blood and plasma donation on a voluntary and non-remunerated basis making it difficult to create regular blood donation and have the donors built up a donor career, and keeping mysticism alife as Goethe made Dr. Faustus express: "Blut is ein ganz besonderer Saft".

Keywords

Blood Supply, Positive Psychology, Motivation, Stewardship

1. Introduction

Positive psychology in transfusion medicine represents voluntarism, altruism, motivation and service above self, but also satisfaction of curiosity as illustrated in the following historical events:

Johan Wolfgang von Goethe (1749-1832) made his Dr. Faustus express "Blut ist ein ganz besonderer Saft" (Goethe, 2014, Reclam Verlag), noticing the applied positive psychology blood may generate.

Since ancient times, blood has been considered as an intriguing, life-saving and supportive body fluid. It has triggered a mystic and scientific curiosity stimulating both a mystical and a scientific thinking to unveil its capacities and potential use to serve mankind (Maruf, 1954). In ancient Egypt during the reign of the Pharaohs it was a royal custom to bath the wounded warriors in ox blood to allow an accelerated healing of the battle wounds. The rationale was a positive psychological belief in the power of the ox that would be transferred through the blood to the wounded warier and provide its strong and healthy healing capacities to cure the injured skin and muscles. The Roman writer Plinius (61 ad - 113 ad) reported on the habit in old Rome of men who ran into the arena to drink the blood of dying gladiators in the expectation to acquire some of the braveness and strengths of these victims; an exclusive example of applied positive psychology. Claudius Galenus (129 ad - ±200 ad) advised drinking of blood of a weasel or a dog to cure rabies. The old Vikings drunk the blood of seals and whales as a cure against epilepsy and scurvy, reflecting a primitive scientific thinking of the beneficial and healing use of human and animal blood (positive psychology). An old Hebrew manuscript discloses the use of blood as a fluid with special healing powers. Here it was not so much the oral consumption or external application, but an intravenous application "*Naäm, supreme commander of the armies of Ben-Ada, king of Syria, consulted his doctors because he was suffering from leprosy.*" To kill the leprosy the doctors let his blood out and refilled his veins with blood from someone else, indicating the health effects of normal blood on a diseased person. In the 13th century the Venetian magister scientist Petro de Albano describes the evil effects of drinking menstrual or leprous blood: "*He who drinks such blood will become lunatic, evil and forgetful*", therefor attributing healthy powers to normal blood and evil powers to blood from diseased or unclean people.

In 1692, Pope Innocentius VIII suffering from a chronic renal disease, was advised by a mystical doctor from Rome to have administered the blood from 3 young and healthy men. The available old parchment discloses that such practice would safe him from dying and give him back his youthful strength (Lindeboom, 1954). The historiography indicates that 3 healthy boys were selected who were remunerated a golden ducat after which the exchange transfusion would have taken place. A few days later the Pope died and the three young donors were also not able to recall the experiment. However, it is not clear whether there really has been a transfusion. Probably there has been an error in translation or interpretation from the original Latin text. It is more likely that the blood was used for the preparation of a special healing potion the Pope would drink. When the Pope got notice of this he condemned the practice, and refused to drink the offered potion. The mystic doctor was punished and the Pope passed away!

In 1667, in France at the court of Louis XIV the young court physician and "most able Cartesian philosopher" Jean Baptiste Denis (internist) from Montpellier together with the surgeon Paul Emmerez did quite some dog-to-dog transfusion experiments. When presented a severely ill boy with fever and weakness due

to the many blood lettings, he decided to transfuse the boy with lambs blood, which resulted is a miraculous curative effect. Shortly after this success a second 45 years old male was successfully transfused, followed by the son of the Minister of Foreign Affairs of Sweden who fell seriously ill while in Paris. Denis decided to treat him with two subsequent transfusions, and with good success. The report was published in the Philosophical Transactions of the Royal Society of July 1667 (Denis, 1667). The following patient transfused by Denis was a 34-year-old man Antoine Mauroy, who suffered from a tragic love affair. He received over a period of a couple of months several calf blood transfusions (**Figure 1**), but started after the second transfusion to react with fever, pain in the lumps, increased pulse rate, sweating, and dyspnea, excreting black urine. Denis has carefully documented the event, describing for the first time in medical history a classical acute hemolytic transfusion reaction. Mauroy survived, but when a few month later his mental condition again deteriorated, Denis decided to treat Antoine Mauroy with another transfusion, which unfortunately caused his death due to acute lethal hemolysis. Denis was accused of murder but plead not guilty.

Figure 1. Denis, mauroy and emmerez.

However, the conservative Paris University Sorbonne forbid further blood transfusion experiments. Also in England further experiments were forbidden, followed by the anathema of the Pope.

These ancient medical events reflect an applied positive psychology that had driven the experiments with the 'transfusion' or transfer of blood whether from animals or humans. Today, the professional field of transfusion medicine offers a manifold of opportunities to apply positive psychology.

2. The Structure of the Blood Supply

The blood supply is an integral part of the national health system that humans whether from animals of supports a manifold of therapeutic interventions, regulated by the Government. WHO promotes to have it anchored in a legal framework and blood policy to secure a universal availability, affordability, access to, and safety and quality of blood and blood products (WHO, 2020). The practical implementation is delegated to a national board or council, communicating with

regional blood establishments and the Government. It has the responsibility for the oversight, and design of national standards and a manufactures system with a quality management system, a secondary and tertiary transfusion medicine education system for medical doctors, laboratory professionals and registered nurses (Smit Sibinga & Jansen van Galen, 2020; Louw et al., 2023; Farouk et al., 2023; van der Tuuk Adriani & Smit Sibinga, 2008). This should include a structure for continuous professional development, and a comprehensive documentation and archiving system (van der Tuuk Adriani & Smit Sibinga, 2008). Additional to this structure is the responsibility for a continuous public relations system based on the application of positive psychological principles to motivate the community in a sustainable way and motivate potential blood and plasma donors campaigns.

The blood and plasma collected by the blood establishments is pharmaceutically manufactured in the clinically needed blood and plasma products or plasma derived medicinal products (PDMP) (Smit Sibinga & Jansen van Galen, 2020).

Following quality quarantine control, release (labelling) and appropriate storage (cold chain), on demand delivery to the related and served hospitals takes place.

The Hospital has a medical and nursing patient care function, provide the necessary immunohematology (blood groups, alloantibodies and cross match) in preparation of an anticipated and prescribed transfusion. They also provide laboratory work-ups on adverse transfusion events that might take place.

This structure would generate an applied positive psychological environment and climate in which the daily practice in all its details would operate.

3. The Blood Supply Details and an Applied Positive Psychology Environment and Climate

To share blood, plasma, or an organ or tissue with someone else, mostly an unknown stranger young or old, male or female, needs sustained motivation and willingness to become convinced of the value and social solidarity needed. It also need an environment and climate that helps preparing for such act of social solidarity. However, before the "Gift of Life" transfer has taken place, there are several aspects that need to be covered and taken care of (see above):

1. Organization and structure or governance and culture: having a solid and comprehensive organization and national structure anchored in a framework legislation with a competent national regulatory agency and a continuous mechanism to create and sustain a defined quality culture would reflect an applied positive psychology present with the architects.
2. Basic and fundamental instruments in the blood supply: (comprehensive secondary and tertiary vocation and profession) education system (Smit Sibinga et al., 2023), current standards (technical and quality) and guidelines providing specific guidance, quality system and its management (Smit Sibinga, 2013), documentation and archiving system (transparent retrievability) (Smit Sibinga & Jansen van Galen, 2020) and a sound emergency/disaster preparedness plan

(WHO, 2023) will create and sustain a cohesive applied positive psychologic environment and climate for all involved, new and experienced.

3. Technical blood supply or regional blood establishments and hospitals or healthcare institutions: In any community, advanced or developing, the blood supply is determined by the clinical need, an estimation of the amount of blood or plasma needed to meet the transfusion requirements of a patient population according to current policies, clinical guidelines and 'best' practices. If this is established, the hospital or healthcare institution orders the amount (demand) with the blood establishment. The demand is actually the amount of blood that would be transfused if all prescriptions for blood were met appropriately (WHO, 2022). However, demand may reflect appropriate or inappropriate indications and different clinical practices e.g., restricted vs liberal use of blood, whole blood vs components. The blood establishment is responsible for the distribution to the various hospitals and healthcare institutions according to their demand and in a timely and appropriate way (cold chain). The receiving hospital or healthcare institution checks the received shipment and starts with the final preparation (cross match) for the ultimate use of the amount of blood currently transfused. The ultimate use may be appropriate or inappropriate. When the need, the demand and the ultimate use are according to the current scientific state of the art there is full reason to have created a satisfactory situation of applied positive psychology provided the manufacturing process has followed strict quality system instructions [process descriptions (PDs), standard and equipment operating procedures (SOPs and EOPs)] (Jansen van Galen & Smit Sibinga, 2013).

Being able to deliver repetitively and sustainably quality efficacious blood products and plasma derived medicinal products, manufactured in the right environment and stimulating climate there will be a situation of applied positive psychology.

However, the hurdle is with the way the blood supply community all over the world approaches the potential blood and plasma donors with a hidden to even open coercion or mental pressure, one of the reasons for a limited percentage of regular and repeat donors or short donor careers, mostly one time only donations(Titmuss, 1970; WHO, 2010) and expresses the "*I need you*" attitude like Uncle Sam in World War I pointing his finger (**Figure 2**). It is actually the other way around, where these motivated potential donors will respond a call telling "*If you (blood establishment) need me, here I am*".

Figure 2. Uncle Sam.

Changing "recruitment" into "mobilization" through "motivation" will generate a satisfactory feeling of positive psychology applied, and the motivation through sustained awareness strengthened (15, 16).

4. The hospital and the healthcare institutions: Despite the tremendous scientific progress in transfusion medicine which took place following World War II, there is still a vague mystic annotation with blood, especially in the clinical setting e.g, life saving, what is lost should be given back. Blood when transfused is always supportive where PDMPs may have a preventive and curative effect e.g. in hemophiliac (FVIII and IX), immune diseases (immunoglobulins) and protein loosing gastroenteropathies (albumin). When blood is lost physiology learns that hematopoiesis and protein synthesis will intensify their productive function within 24 hours. This 24 hours is the period to bridge depending on multiple organ failure threads and meticulous clinical observation of the patient. The most advisable and positive psychological (satisfaction) intervention is tissue perfusion and a low blood viscosity (Hematocrit) to allow red cells a more easy entrance in tissues and organs to deliver oxygen, preventing organ failure (Valeri et al., 1997; Gammon, 2024).

This happens when practicing restricted instead of liberal transfusion in such clinical cases (Gammon, 2024) and brings patients and healthcare personnel in an environment of applied positive psychology.

5. Public Relations Campaigns: To create awareness and generate sustained motivation among the public in general regular campaigns are needed with appropriate and realistic information, preferably picturized. Visibility generates recognition and identification, as well as a feeling of contribution and stewardship, which are important pillars to create sustainability of awareness and motivation.

Such environment and climate is necessary to apply and sustain positive psychology among the public irrespective of the generation but with respect for cultural background and religion.

4. Conclusion

Transfusion medicine and the daily blood supply are essential and integral elements of the health care and show in all its details a psychologic effect. When this effect is applied in a positive way it will contribute to a transparent organization and structure, implementation and quality of operations vein-to-vein, strengthen motivation, stewardship and confidence.

Conflicting Interests

The author declares to have no conflicting interests.

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