Power Motivation

8

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8.1 Power as Social, Cultural and Individual Phenomenon

Power is a fundamental dimension of human communal life (Russell, 1938/2004; Winter, 2006). Regardless of whether we consider rules enforced by states or different institutions, asserting oneself in discussions at work or in romantic relationships or arguments between pre-schoolers about who gets to "decide" are all examples which constitute expressions of power and its pursuit. These situations have in common that one actor has some form of influence over another, which can be interpreted as the core characteristic of power (Lukes, 1974): "Power constitutes the possibility of an influencing instance (person, group or institution) to influence others as desired" (Bierhoff, 2006, p. 414). This can happen in many different ways.

Everyday usage frequently adds a negative connotation to the expression "power" as it is associated with the misuse of power, oppression and other related concerns. We can indeed find examples in academic literature that define power as the influence on others against their will or in the presence of resistance (s. Dahl, 1957; Partridge, 1963).

The famous saying "Power tends to corrupt and absolute power corrupts absolutely" (Lord Acton, English historian and politician, 1834–1902) expresses the danger of misusing power very clearly. Several studies show that this is undoubtedly a real threat: Individuals with a high level of power differ from those with little power in various ways, including:

- Talking more than their conversation partners (Schmid Mast, 2002) and interrupting them more frequently (Hall, Coats, & LeBeau, 2005)
- Evaluating others more frequently based on how useful they appear for achieving personal goals (Gruenfeld, Inesi, Magee, & Galinsky, 2008)
- Attributing the accomplishment of others to themselves (Kipnis, 1972)

However, if power is more generally defined as the possibility to influence others, it is of course also possible to do so in a positive way. Scholl (2007) suggests using the term "social impact" when actors use their possibility to influence others. Even if this term has the advantage of being more neutral, we will nevertheless use the term power throughout this chapter as it is established in the literature. There are in fact several findings that suggest that power can be used in prosocial ways. Individuals with high degrees of power – when compared to those with little power – have, for example, been found to:

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- Be more willing to forgive others (Karremans & Smith, 2010)
- Be more accurate when assessing the emotions of others (Schmid Mast, Jonas, & Hall, 2009)
- See themselves as more willing to help (DeMarree, Briñol, & Petty, 2014) and act more helpfully (Chen, Lee-Chai, & Bargh, 2001)

Interestingly, these seemingly contradicting findings can be explained fairly well with a statement from another politician: "If you want to test a man's character, give him power" (Abraham Lincoln, US President, 1809–1865). Why does this statement fit the aforementioned findings so well? Power shapes behaviour (Hirsh, Galinsky, & Zhong, 2011) – and the behaviour shaped in this process corresponds to the traits and views that are most pronounced in the respective individual (Anderson & Berdahl, 2002; Bargh, 1990; DeMarree et al., 2014): Individuals with a strong need for social attachment, for example, show less misuse of power in order not to endanger their social contacts (Rios, Fast, & Gruenfeld, 2015). Thus, power causes people to act more in accordance with their personality or in other words more authentically (Keltner, Gruenfeld, & Anderson, 2003). Two caveats, however, need to be considered when trying to apply this rule. Extremely strong situational stimuli can advise an individual to act in another way (Guinote, Weick, & Cai, 2012); and the experience of exercising power can of course change an individual's traits and views in the long run (Kipnis, 1976).

Pointing to the positive aspects of power does therefore by no means suggest that power is never at risk of being abused. It is, however, important to stress that power can evidently have two distinct faces (McClelland, 1970): one that is manipulative and oppressive and another that is helpful and supportive.

Definition
These two facets are called personalised and socialised power, respectively (McClelland, 1970, 1975).

There are thus two different reasons for why people desire power: in part because they can feel strong and superior by dominating and manipulating others (personalised power) and in part because they can use their scope of influence to contribute to the well-being of the collective and support others. Russell (1938/2004) writes that power needs to be tamed in order to encourage productive rather than destructive behaviour. It is without a doubt a highly relevant question for society how the pursuit of power can be directed in such a way that it takes on its socialised rather than its personalised form. Winter (2006) names some personality traits that can contribute to "the taming of power", e.g. the affiliation motive and activation inhibition. We will return to this thought when we will discuss various behavioural correlates of the power motive in Sect. 8.4.

As the examples at the beginning of the chapter show, there are different instances that can exercise power. The executive, judiciary and legislative institutions of society are three such instances, and scientific disciplines such as political science and sociology try to develop a deeper understanding about them. The focus here is primarily on analysing the institutions and procedures that regulate society as well as the mechanisms and structures of political authority (cf. Berg-Schlosser & Stammen, 2013). There is a long history in the humanities of developing ideas about which forms state control can take; in the European cultural sphere, they go all the way back to Plato's *Republic*. The ideas that have been developed differ significantly with regard to how power should be authorised. Sociologist Max Weber developed a famous typology of the legitimation of authority: it can be based on structures passed down by tradition (traditional authority), on the belief that a certain leader is chosen or destined to lead (charismatic authority) or on a general legal basis applicable to everyone (rational-legal authority) (Müller, 2007). Depending on the relative relevance ascribed to these three sources of legitimation, different forms of states and societies emerge as we can easily confirm when taking a look at history or contemporary politics.

Psychologists have also discovered that the distribution and use of power vary across societies. In fact, cultures differ with regard to the extent to which their members accept or even expect dissimilarities in how power is distributed. This dimension is known as power distance (Hofstede, 2001). Cross-cultural psychology uses this construct for the description of and distinction between different cultures. Cultures with a high degree of power distance accept hierarchical structures and status differences, whereas cultures with a low degree of power distance perceive egalitarian structures and status equality as more desirable (Hofstede, 2001; cf. Schwartz, 1994). Power distance and form of government, however, are not necessarily equivalent. When comparing France and Germany, two Western European democracies, we find that both are individualistic cultures, but power distance is much larger in centralist France compared to federal Germany (Hofstede, 2001).

Studies have shown that the degree of power distance in a culture can influence the perception of those in positions of power. Such studies frequently examine leadership in professional contexts. For instance, students were asked to image themselves as an employee whose company is going through various changes due to a fusion. Students from cultures with low levels of power distance tended to express more trust in their employers and were less inclined to consider leaving their company and finding a new job when having a say in these changes and thus a possibility to influence them. They tended to act as if this option did not even exist. Having a say did not, however, influence this variable in students from cultures with high levels of power distance (Summereder, Streicher, & Batinic, 2014). Sure enough, authorities have a stronger influence on group decisions in cultures with high power distance compared to cultures with low power distance (Eagley, 1999). Another study found that power distance moderates the relationship between employers' emphatic and appreciative leadership and employees' well-being (Zwingmann Wegge, Wolf, Rudolf, Schmidt, & Richter, 2014). In more specific terms, this means that employees in cultures with high power distance benefit more from this form of positive leadership than their counterparts in cultures with low power distance. Such findings exemplify that less participation in decision-making is expected in cultures with high power distance; furthermore, the behaviour of employers and other authorities is seen as more significant, thus having a stronger influence on subordinates. The opposite is true for cultures with low power distance.

So far, this chapter primarily discussed the societal and cultural understanding of power. From here on, we will have a look at the motivational psychological perspective because individuals can of course also exercise power and influence others. Because there are large interpersonal differences in the inclination to influence others, power is an important phenomenon in motivational psychology. Therefore, we will next define the power motive, establish its evolutionary foundation and discuss its neurobiological basis and developmental conditions (Sect. 8.2). Subsequently, we will delineate different measures that can capture the power motive (Sect. 8.3). At the end of this chapter, we will have a look at different behavioural correlates of the power motive (Sect. 8.4).

8.2   The Motivational Psychological Perspective of Power

8.2.1   The Power Motive

"Love of power, though one of the strongest of human motives, is very unevenly distributed" – this quote by Bertrand Russell (1938/2004, p. 10) already provided a fairly accurate summary of the motivational psychological perspective of power. Even though everybody desires power, there are large interpersonal differences with regard to how strong this desire is across individuals.

The power motive is the desire to exert influence on others.

Influence can be directed towards the physical states, thoughts and/or emotions of other people. It can also become manifest in various ways. In an analogous manner to the achievement motive (see Chap. 6) and the affiliation motive (see Chap. 7), the power motive exists in an implicit, i.e. unconscious, and an explicit, i.e. conscious, form (McClelland, Koestner, & Weinberger, 1989). Section 8.3 will elaborate on this distinction. The following sections will primarily focus on the implicit power motive.

People with a strongly developed power motive therefore take pleasure in situations in which they exert influence on others because such situations ensure them of their superiority

The central incentive of the power motive is the experience of strength and social impact.

and control (McClelland, 1975; Winter, 1973). On the other hand, situations in which they cannot exert influence or even are under the influence of others are extremely unpleasant to them because they make them feel weak and ineffective. Thus, the pursuit of power can also be interpreted as a fear of weakness (Veroff & Veroff, 1972). In fact, one incentive of power is that it makes individuals independent and autonomous (Lammers, Stoker, Rink, & Galinsky, 2016; van Dijke & Poppe, 2006).

How then do people with a strong power motive react if they cannot exert influence on another person, e.g. if that person is resisting any potential influence or if that influence fails to show the desired effect? In order to answer this question, we have to analyse the context in which the situation takes place. On the one hand, the situation has to stimulate the power motive, i.e. it has to be evident that exerting influence is possible given the particular context. This is the case in situations in which individuals can show strong leadership or impress others. On the other hand, the stimulated power motive must then be frus-

trated, for instance, because other people disagree or give negative feedback. If these two conditions are met, people with a strong power motive experience power stress. This is an internal condition of the phenomenon: compared to individuals with a weak power motive, individuals with a strong power motive express this phenomenon by:

- Reporting stronger agitation, which can be physiologically confirmed by heightened muscle tension (Fodor, 1985)
- Reporting more anxiety (Fodor & Wick, 2009)
- Acting less cooperatively with others (Fodor & Riordan, 1995)
- Perceiving another person who is acting in a dominant way as disagreeable (Fodor, Wick, & Conroy, 2012)

The study presented in the box illustrates the context for and the effects of power stress. Although most research has been done in a work context by giving participants leadership roles, the phenomenon can also be found in other interpersonal contexts, such as evaluating a potential partner for a date (Fodor et al., 2012).

Study
Power Stress Caused by a Dominant Colleague
Fodor, Wick and Hartsen (2006) preliminarily identified participants with particularly strong and weak power motives for their study. These participants were asked in a laboratory setting to imagine themselves in the role of a manager. Subsequently, they were shown a video featuring a potential colleague called Greg who was applying for a subordinate position in the participant's team. The applicant's behaviour was varied experimentally. One version of the video showed him as dominant and ready to disagree with authority; in another version he was less dominant and tried to understand the opinion of authori-

ties even in cases in which he disagreed. After having watched the video, participants were asked to picture as vividly as possible what it might be like to work together with the applicant as his superior.

This scenario met the external conditions for causing power stress: the power motive was stimulated by taking the role of a superior, while at the same time, there was a threat of frustration in the experimental condition with the dominant applicant. Thus, the authors expected an interaction effect between the strength of the power motive and the experimental condition. The most negative attitude towards the applicant was expected for participants with a strong power motive who had seen the dominant behaviour in the video.

Fodor et al. measured two dependent variables. As one of them, the authors used an EMG to measure the activity of the corrugator supercilii muscle that causes frowning. High activity means strong frowning, causing clearly visible wrinkling of the forehead. Thus, high activity represents stronger negative affect. Just as predicted, the highest corrugator supercilii activity was found for participants with a strong power motive who had seen the dominant applicant (Fig. 8.1). The same pattern was found for the second dependent variable: a self-report about the emotional attitude towards the applicant. This study is an example of how particularly people with a strong power motive show physiological reactions and subjectively experience power stress in situations of anticipated frustration of the stimulated power motive.

8.2.2 The Evolutionary Roots of Power

We have already seen that cultures differ with regard to the acceptance of inequality in the
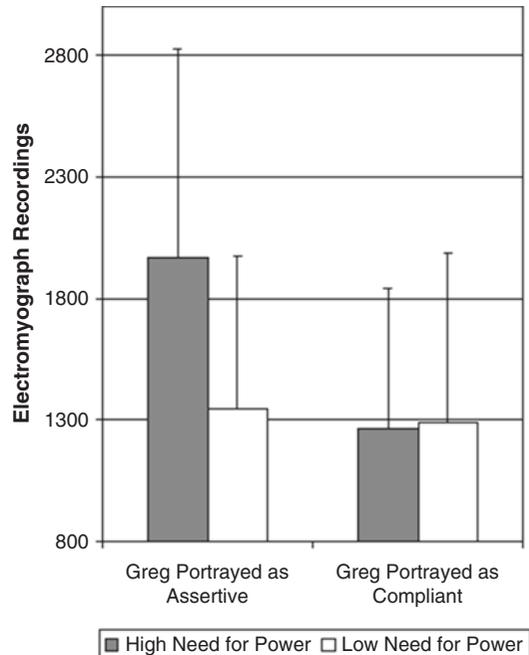
Fig. 8.1 Power stress: the relationship between the activity of the corrugator supercilii and the power motive disposition as well as dominant behaviour of an interaction partner (Fig. 1 in Fodor et al., 2006)

distribution of power (power distance: Hofstede, 2001; Sect. 8.1). The fact that an analogous characterisation is possible in all cultures shows that power and the power motive are universal phenomena (cf. Russell, 1938/2004). Therefore, it is hardly surprising that different languages across cultures have a dimension of dominance versus submission for describing personality (White, 1980). Why is power evidently such an important quality?

We can find one answer to this question if we do not focus exclusively on human beings. Particularly for non-human primates – species who are closely related to humans – there has been a long tradition of trying to measure personality differences, and dominance has played a central role from early on (see, e.g. Bernstein, 1981). In an influential study by King and Figueredo (1997), chimpanzees living in zoos were characterised with a list of adjectives that had been established for human participants. In addition to the well-known Big Five (see Chap. 3), they found a dominance factor consisting of adjectives such as dominant, independent and

anxious (poled negatively). Although not all factors have been replicated clearly in later studies, the personality trait dominance has been shown in other samples of chimpanzees (King, Weiss, & Farmer, 2005; Latzman, Freeman, Schapiro, & Hopkins, 2015). As expected for a personality trait, dominance shows a high test-retest correlation for non-human primates (Freeman & Gosling, 2010; Pusey, Williams, & Goodall, 1997).

Studies based on these insights have found that the personality trait dominance is associated with observable behaviour in primates. For orangutans living in zoos, the probability of successful goal realisation was rated higher for more dominant animals (Weiss, King, & Perkins, 2006). Amongst gorillas in the wild, dominance correlated positively with the frequency of successfully chasing away another animal from a particular location as well as with the number of interventions in fights within a group; and it correlated negatively with initiating eye contact with other members of the group, which is often done by individuals of low status amongst gorillas (Eckardt, Steklis, Steklis, Fletcher, Stoinski, & Weiss, 2015). Amongst chimpanzees in the wild, it has been observed over the course of several years that the offspring of dominant females has a higher chance of survival, gains weight faster and – in cases of female offspring – reaches sexual maturity earlier than the offspring of less dominant females (Pusey et al., 1997).

Such findings suggest that dominance is associated with clear advantages for survival and reproduction for non-human primates (see also Voland, 2000). An explanation for this relationship is that dominance constitutes a way to gain and secure material and social resources (Weiss, King, & Enns, 2002). From the perspective of evolutionary psychology, it seems reasonable to transfer this argument to humans because human evolutionary development – just like in the case of other animals – had to rely on access to resources; therefore, humans are thought to have developed motivational tendencies that are conducive to acquiring resource (Hawley, 1999; MacDonald, 1988).

It is easy to observe the relationship between dominance and access to resources in children. If a resource is given to a group of children, clear differences in access to it can be seen across individuals. These differences can be explained with the dominance of the respective child. For instance, Charlesworth and La Freniere (1983) gave groups of four 5-year-old children the opportunity to watch an attractive film. However, this was only possible for one child at a given time and furthermore only if two other children simultaneously activated a switch that turned on the film. As predicted, children that had been classified as dominant in preliminary behavioural observations watched the film significantly longer than other children. Hawley (2002) could confirm the central finding that dominance leads to access to resources in a much more elaborate research design. She formed dyads consisting of one child that had previously been judged dominant by educators and another one that had been judged non-dominant. These dyads were introduced to games and instructed to assign different roles to play them. While one of the two roles was attractive (e.g. placing beads on the arms of a moving toy character), the other one was far less attractive (e.g. providing the other child with beads). Once again it was the dominant child who took on the attractive role for a longer time. Interestingly, just as we saw earlier in the case of dominance amongst non-human primates, dominance ratings are stable over time for children as well (La Freniere & Charlesworth, 1983).

It has been shown for non-human primates and humans alike that dominance is associated with a higher probability of gaining access to limited resources. The pursuit of power has thus evolved phylogenetically because dominance helps with ensuring one's survival and boosting one's reproductive success. The finding that dominant individuals are able to successfully access resources raises the question of what kind of behaviour they use to reach this goal. Directive behaviour, such as threatening other children or chasing them away, is without a doubt effective

in the short run. In fact, such behaviour plays an important part in how dominant children act (Charlesworth & La Freniere, 1983; Hawley, 2002). On the other hand, dominant children also behave in ways that might be considered more socially acceptable (e.g. asking other children to step aside or offering a favour in return) but are nonetheless instrumental in gaining resources (Hawley, 1999, 2002). Thus, although the dominant children in Charlesworth and La Freniere's (1983) study watched the film for a longer time than less dominant children, they did not differ from others with regard to the time that they spent in the supportive role. The observation that both directive and more considerate strategies are correlated with successfully controlling resources has been found not only for children but also for different age groups (e.g. Hawley, Shorey, & Alderman, 2009).

Even though both facilitate successful access to resources in the short run, both directive and considerate behavioural strategies come with different advantages and disadvantages. Considerate behaviour might be useless when dealing with obstinate others, but it preserves social harmony. On the other hand, assertiveness is often successful when trying to secure resources, but it can lead to social conflict. Therefore, it appears to be a good strategy to combine both in order to compensate for their respective disadvantages. This pattern can in fact be found if individuals are classified based on the frequency of the different behavioural strategies they use. People who combine directive and socially agreeable strategies (Hawley, 2003; Hawley, Little, & Card, 2007):

- Control resources as often as people who rely on directive strategies and more often than those who primarily act in a socially agreeable way
- Are better liked amongst their peers compared to people who rely on directive strategies, but not those who primarily act in a socially agreeable way

In order to avoid the social costs of purely directive strategies, children already adapt their approach for controlling resources: it is a development from a strategy focusing on pure dominance to a form of dominance that is compatible with social agreeableness. Until the age of 6 years, dominance tends to be associated with popularity; later, however, it is perceived more negatively (Hawley, 1999). If dominant behaviour leads to social rejection, as several studies have shown (e.g. Hawley, Little, & Pasupathi, 2002; Newcomb, Bukowski, & Pattee, 1993; Ridgeway, 1987), relying exclusively on this strategy should impair the possibility to exert influence in the long run. For instance, people who could otherwise be influenced might begin to resist or avoid the dominant person, thus evading their influence.

Indeed, people with a strong power motive seem to consider these costs. Contrary to popular belief, they do not always act dominantly in order to exert influence, but are able to use smarter strategies (cf. McClelland, 1975). Although some studies have found that people with a strong power motive might lose influence due to maladaptive dominant behaviour (Kolb & Boyatzis, 1970; for further results see McClelland, 1987), there has also been evidence that such individuals are perceived as particularly convincing, which has been explained with subtle facial expressions and gestures (Schultheiss & Brunstein, 2002). Thus, people with a strong power motive seem to be able to satisfy their desire for exerting influence without using dominant behaviour.

In general, dominance is an important component of social interactions in humans and non-human primates. It enables individuals to secure high social status by gaining attention (La Freniere & Charlesworth, 1983, measured this through looks at a person; cf. the results of Eckardt et al., 2015, with gorillas) and access to resources. However, balancing the pursuit of resources and an appreciation of social relationships is crucial for maintaining popularity within a group. This balance can be achieved by combining directive and socially agreeable behavioural strategies to gain access to resources (Hawley et al., 2009). This was also confirmed by more recent findings according to

which people with a strongly developed need for social affiliation indicated to act in a particularly submissive way when being assigned a position of power (Rios et al., 2015). Thus, individuals who consider social harmony to be important do not often act in a directive way in such a position in order to maintain social cohesion (see Sect. 8.4.1).

8.2.3   The Neurobiology of the Power Motive

In the previous section we saw that power – represented by dominance and status – constitutes an important differential trait across individuals for predicting social behaviour. This was true for humans and non-human primates alike. When searching for neurobiological substrates of motivation (see Chap. 10), particularly the power motive, it therefore seems to be fairly reasonable to start with non-human species once again and subsequently expand our thoughts to humans.

The sex hormone testosterone has often been used when trying to explain differences in dominant and aggressive behaviour across males of various species (Mazur, 1985; Mazur & Booth, 1998). Although there is evidence for a general relationship between testosterone level and dominance (e.g. Anestis, 2006; Muehlenbein & Watts, 2010), many studies do not confirm such a connection (e.g. Barrett, Shimizu, Bardi, Asaba, & Mori, 2002; Lynch, Ziegler, & Strier, 2002; overviews can be found in Sapolsky, 1987; Wingfield, Hegner, Dufty, & Ball, 1990). However, a strong relationship between testosterone and aggressive behaviour in order to ensure dominance has indeed been found in males of various species in situations in which new dominance patterns emerge (e.g. due to an injury of the previous alpha male; Sapolsky, 1991) or if they are threatened (e.g. when a rival enters one's territory; Wingfield et al., 1990). Therefore, simultaneously regarding testosterone and environmental stimuli pertaining to dominance provides much more information than focusing on baseline testosterone alone.

Following this argument, we will first also focus our discussion of humans on men. Although there is evidence for a relationship between baseline testosterone and the power motive in men (Schultheiss, Dargel, & Rohde, 2003a; Winter, 1973), situational stimuli should still play an important role. The first question is what kind of external stimuli relevant to dominance need to be considered in order to examine the relationship between the power motive and testosterone. Competitions are a common interaction with the explicit purpose to determine the ranking of individuals, which Edwards (2006, p. 682) called "formalized contests for status".

Accordingly, Schultheiss, Campbell and McClelland (1999) examined changes in saliva testosterone in male participants who had lost or won against an opponent in an experimental competition in which they had to finish a number combination test faster than their counterpart. There was no systematic change in testosterone compared to the baseline in losers. Winners, however, showed a considerable rise in testosterone if they had had both a strong desire for dominance over others (personalised power) and at the same time a weak need for positive influence via help and support (socialised power) prior to the competition. If, however, both personalised and socialised power had been strong initially, their testosterone dropped below the baseline. In fact, changes in testosterone can even be found in situations that merely stimulate dominance, such as imagination exercises about successful motive realisation (Schultheiss et al., 1999), film scenes that depict dominance (Schultheiss, Wirth, & Stanton, 2004) or when participants take on posture signalling dominance (Carney, Cuddy, & Yap, 2010). Just like in animals, the dispositional power motive and contextual cues pertaining to dominance apparently interact in humans as well and influence their hormonal reactions.

This general conclusion was further confirmed for the stress hormone cortisol by another insightful study. Using the same competition context as Schultheiss et al. (1999), the authors found an interaction between the strength of the power motive and the result of the competition (Wirth,
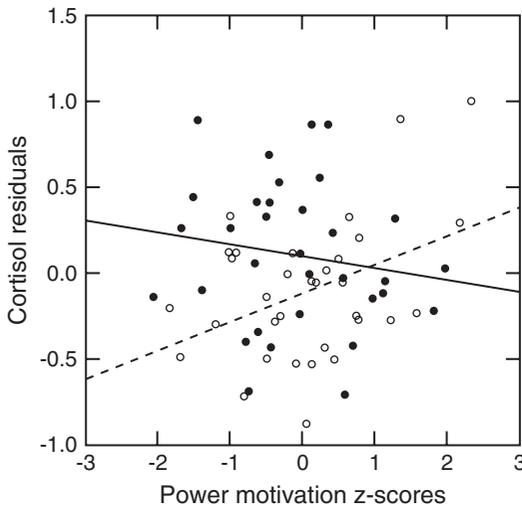
Fig. 8.2 The relationship between the implicit power motive and changes in cortisol compared to the baseline level in response to winning (*continuous line*) and losing (*dotted line*) a competition (Fig. 1 in Wirth et al., 2006)

Welsh, & Schultheiss, 2006). However, in contrast to testosterone, an effect on the power motive was found in losers rather than winners for cortisol. This interaction is shown in Fig. 8.2. Whereas no relationship between power motive and cortisol was found in winners, losers' cortisol rose substantially the stronger their power motive was.

How can we explain these effects of a competitive situation on testosterone and cortisol? For answering this question, Stanton and Schultheiss (2009) developed a biological model of the power motive for men according to which there are two opposing mechanisms through which competitive situations affect testosterone production (Fig. 8.3). The outcome of the competition determines which mechanism becomes relevant. Both mechanisms themselves, however, depend on the power motive.

First, let us have a look at a situation that stimulates the power motive, e.g. a competition that will potentially allow for dominating an opponent or an actually successful competition. Such a simple stressor activates the release of epinephrine/norepinephrine, also known as adrenaline/noradrenaline. Epinephrine/norepinephrine causes an increased testosterone production. The strength of the power motive influences the

release of epinephrine/norepinephrine. This was shown in studies in which students were put in different situations stimulating power (e.g. competitive situation prior to an examination, argument with the university administration), and those with a strong power motive had a stronger increase in epinephrine/norepinephrine than participants with a weak power motive (McClelland, Floor, Davidson, & Saron, 1980; McClelland, Ross, & Patel, 1985). Evidently, people with a strong power motive react to challenges to their dominance with a stronger release of epinephrine/norepinephrine and thus a higher testosterone production.

Now let us have a look at a situation in which the power motive is frustrated. We have already introduced the concept of power stress: physiological activation in individuals with a strong power motive in reaction to external obstacles that hinder the realisation of their pursuit of power in a particular situation (Fodor, 1985; Fodor et al., 2006). We find the same constellation when although a competitive context theoretically allows for dominating an opponent, losing the competition makes such dominance impossible: much rather, the opponent is the one gaining dominance. In this case more cortisol is released, which inhibits testosterone production. As we saw earlier, this process is particularly strong in people with a strong power motive (Wirth et al., 2006). More recent studies have provided more information about this connection between cortisol and the power motive. Following a situation in which the power motive is stimulated but also frustrated (viz. a presentation with a reserved committee), participants had a stronger power motive than their baseline before the presentation. This increase of the power motive was negatively associated with increasing cortisol (Wiemers, Schultheiss, & Wolf, 2015). This means that a less pronounced release of cortisol as a stress reaction predicts a stronger increase of the power motive. Furthermore, there are first indications that giving cortisol to people lowers their power motive (Schultheiss, Wiemers, & Wolf, 2016).

These findings as a whole mean that the power motive modulates testosterone production in men

Fig. 8.3 Biological model of the power motive in men: the power motive influences the release of hormones in different contexts of dominance (Fig. 1 in Stanton & Schultheiss, 2009)
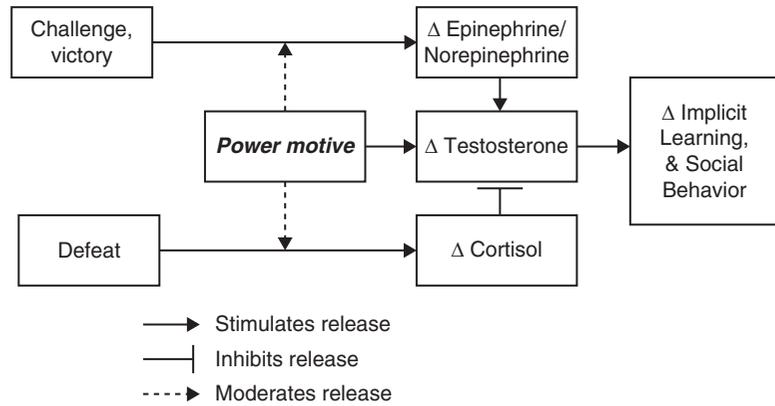
in reaction to external stimuli relevant to dominance. After winning a competitive situation, an increase in epinephrine/norepinephrine stimulates testosterone production, whereas an increase in cortisol inhibits it after defeat. Both processes are stronger in individuals with a strong power motive than those with a weak one.

Which functions do these hormonal changes serve depending on the strength of the power motive? Studies have shown that the increase in testosterone following successful competitions promotes motor learning, while the reduction following defeat hinders such learning (Schultheiss & Rohde, 2002; Schultheiss, Wirth, Torges, Pang, Villacorta, & Welsh, 2005). For instance, Schultheiss et al. (2005) created a competition in which participants had to react as fast as possible to symbols shown on a computer screen. While the position of these symbols on the screen was random in some trials, other trials showed the symbols in a repeated pattern and yielded an interested result. Participants' learning curves, i.e. faster reactions to the pattern, were associated with a change in testosterone. In accordance with our observations so far, this change depended on whether participants won or lost and on the strength of their power motive. An increase in testosterone thus boosts behaviour that has proven to be instrumental in dominating an opponent in a competitive situation (unsurprisingly, changes in testosterone predict the readiness to participate in further competitions; Mehta & Josephs, 2006). A reduction in

testosterone, on the other hand, inhibits learning the same behaviour as it has proven to be ineffective.

So far we have only looked at the relationship between the power motive and hormones in men. Do the results presented so far apply to women as well? Vongas and Al-Hajj (2015) point to different mechanisms of testosterone production in women compared to men. While testosterone primarily has a gonadal foundation in men, the hypothalamic-pituitary-adrenal axis (HPA axis) is of particular importance in women. The release of cortisol also stimulates the testosterone production in this way. Accordingly, not only victory but also defeat increases cortisol and testosterone in women with a strong power motive (Schultheiss et al., 2005; Wirth et al., 2006). While the increase in cortisol thus causes a stronger avoidance of competitive situations in men (Stanton & Schultheiss, 2009), the same increase should boost the readiness to participate in competitions in women due to the associated increase in testosterone. Indeed, women tend to be more persistent after defeat than men (Bronson & Merryman, 2013).

In addition to testosterone, the female sex hormone oestradiol is also important for the power motive. A relationship between oestradiol and dominance has been found in females of several non-human mammals (e.g. Michael & Zumpe, 1993) and also in humans (Stanton & Edelstein, 2009; Stanton & Schultheiss, 2007). Comparable to testosterone in men, there is a

dynamic influence of oestradiol depending on external factors. In women with a strong power motive, victory leads to an increase in oestradiol, while defeat leads to a decrease (Stanton & Schultheiss, 2007). Moreover, the relationship between the power motive and baseline oestradiol is stronger in single women than in women who are in a stable relationship and women who do not use hormonal contraception, i.e. take the pill (Stanton & Edelstein, 2009; Stanton & Schultheiss, 2007; slightly different results by Schultheiss et al., 2003a). Because both dominance and oestradiol are linked to the frequency of sexual activity (Pusey et al., 1997; Schultheiss, Dargel, & Rohde, 2003b; Udry & Morris, 1968; Voland, 2000), this relationship might be a mechanism to increase the chances of reproductive success.

It has become evident that the power motive has a hormonal representation although it is not the baseline level, but the level found in certain external situations that matters. Schultheiss and colleagues (Schultheiss & Schiepe-Tiska, 2013; Schultheiss, Wirth, Waugh, Stanton, Meier, & Reuter-Lorenz, 2008) assume furthermore that there should be differences between individuals with strong and weak power motives in the activities of certain brain areas. In particular, this should be the case for those areas that have been shown to be involved in emotional and motivational processes, such as the dorso-anterior striatum that plays a role in learning processes like implicit motor learning (Schultheiss et al., 2005) and learning in social contexts (Schultheiss & Schiepe-Tiska, 2013). In fact, when looking at pictures of angry faces compared to emotionally neutral faces, people with a strong power motive show stronger activation of the caudate nucleus, a part of the striatum, on an fMRI than those with a weak power motive (Schultheiss et al., 2008). An interpretation for this finding is that people with a strong power motive react to facial expressions that signalise dominance of the bearer (Tiedens, 2001) with the activation of brain areas that control their own dominance behaviour. Additional findings suggesting that primarily structures in the left hemisphere are activated in reaction to emotional expressions

(Schultheiss et al., 2008) match other results that indicate that pictures (Kuhl & Kazén, 2008) and film sequences about power (Quirin et al., 2011) are mostly processed in the left hemisphere. In summation, the power motive influences hormonal processes and brain physiology if it is stimulated by external cues such as competitions or emotional expressions that signalise dominance.

8.2.4   The Development of the Power Motive

We have already seen that, although power is a universal need, there are substantial differences in the strength of the power motive across individuals. Why do we find such differences? To answer this question, we need to take a look at how the power motive develops.

Many theories assumed that motive development takes place during childhood (e.g. McClelland, 1965; McClelland et al., 1989; Veroff, 1969). With regard to the power motive, most researchers initially proposed a deficiency hypothesis: individuals who only have few opportunities to act dominantly are those who develop a strong power motive (Adler, 1922/1997; Horney, 1937/1964; Veroff & Veroff, 1972; cf. Schwartz, 2012). Because they hardly experience power, such individuals were thought to develop a particularly strong desire for it. The most relevant empirical evidence for this assumption is that men with little formal education, which is interpreted as low social status, have a strong power motive (Veroff, Depner, Kulka, & Douvan, 1980). This argument is supported by findings that suggest that differences in social status can motivate attempts at improving one's social standing (Hays & Bendersky, 2015). However, this result only applies to a specific facet of the power motive, namely, fear of powerlessness. Furthermore, it focuses on social rather than psychological conditions. Lastly, Veroff et al.'s (1980) conclusions were based on a group comparison with adults, which is why the suggested mechanism can only be construed from correlations; however, it cannot be proven.

This deficiency hypothesis has become irrelevant to more recent explanations of the development of motives. Instead, researchers assume that the origins of the power motive can be found in an innate unspecific efficacy motive (Holodynski, 2009). The efficacy motive refers to an infant's joy in creating an effect (e.g. pushing and ringing a bell by moving one's own body). Later during childhood the efficacy motive is thought to split into an achievement motive whose desired effect is represented by meeting a certain criterion (e.g. successfully solving a problem) and a power motive whose effect is influencing other people (e.g. impressing another person).

The most influential study on the development of the power motive to date (McClelland & Pilon, 1983) used a longitudinal design. The authors were able to measure the power motive in participants whose mothers had been interviewed on their parenting behaviour in an earlier study (Sears, Maccoby, & Levin, 1957). Approximately 26 years had passed between the two studies, so the participants who had been about 5 years old when their mothers had been asked about their parenting behaviour had become young adults by the time their power motive was measured. McClelland and Pilon's (1983) study was based on the assumption that the relationship between parent and child determines the strength of motives because parents react to their children's motive-specific behaviour in different ways and thus create an affective preference in children for seeking out or avoiding certain situations. In other words, children receive reactions from their parents if they, for example, behave in a dominant way, and these reactions can later motivate them to repeat certain behaviour or to avoid it. Depending on how parents react, their children will develop either a strong or a weak power motive, raising the question which reactions to which behaviour lead to the development of a strong power motive?

Interestingly, McClelland and Pilon's (1983) findings diametrically contradicted the deficiency hypothesis of how the power motive develops. Mothers' tolerance of their children's sexually suggestive and aggressive behaviour at age 5 was positively correlated at a significant level with the strength of children's power motive two and a half decades later. Examples of behaviour included in the original interviews are children's playing with their own genitals and sexual play with other children as well as aggressive behaviour towards siblings and parents (see Appendix A in Sears et al., 1957, for the exact phrasing of these questions). Two other correlations contradicted the deficiency hypothesis, albeit less clearly: for boys at least, more physical punishment led to a weaker power motive in young adulthood, while for girls at least, parent's suggestion to fight back if a situation demands it led to a stronger power motive.

The most important and robust results of this longitudinal study suggest that children who spontaneously behave in a sexual or aggressive way develop a strong power motive if their behaviour is tolerated by their parents. It appears to be crucial that children's spontaneous aggressive or sexual behaviour is not sanctioned by parents; thus, they do not learn to associate their power-related behaviour with any form of negative affect. Although such a developmental trajectory seems plausible, it assumes that all or at least most children show sexual and aggressive behaviour. Even though it seems reasonable to assume that this might be the case, there are nevertheless substantial individual differences with regard to children's tendency to behave sexually and aggressively. How can we explain these differences?

Looking back at the neurobiology of the power motive will help us here. We saw in Sect. 8.2.3 that the power motive and the sex hormones testosterone and oestradiol influence one another. Interpersonal differences in testosterone and oestradiol that predict spontaneously occurring dominant behaviour can already be found in utero (Liu, Portnoy, & Raine, 2012). After birth this prenatal ratio between oestradiol and testosterone manifests itself in the length of the index finger relative to the ring finger, which is known as the 2D:4D ratio. Concretely, a long index finger compared to the ring finger, which means a high 2D:4D ratio, indicates a high level of prenatal testosterone (Lutchmaya, Baron-Cohen, Raggatt, Knickmeyer, & Manning, 2004). Schultheiss and

Zimni (2015) showed that there is a systematic association between the 2D:4D ratio and the power motive. Therefore, it seems likely that hormonal factors increase the probability of dominant behaviour during childhood.

The results presented thus far suggest that the strength of the power motive is the product of an interaction between biological and social factors. For a child's development, it seems therefore likely that biologically determined differences in the concentrations of the sex hormones testosterone and oestradiol result in different inclinations to dominant, aggressive and sexualised behaviour (see, e.g. Archer, 2006; Liu et al., 2012; Mazur & Booth, 1998; Schultheiss et al., 2003b). Parents tolerate such behaviour in their children to a different extent and thus shape the individual strength of the power motive (McClelland & Pilon, 1983). Conducive parental behaviour is thus required for children to develop a lasting power motive from spontaneous aggressive or sexual behaviour.

With regard to the development of the power motive during later stages of life, there are not many empirical findings either. At least for men, there appears to be a curvilinear relationship between age and the power motive: the latter tends to be higher in middle-aged men compared to early and late adulthood (Veroff et al., 1980). Moreover, some evidence suggests that there is a connection between the number of critical life events and the stability of the power motive over time (see Smith, 1992b). Unfortunately, however, there are not any insightful studies that longitudinally examine the development of the power motive.

McClelland presented an interesting theoretical approach about how the power motive might develop across the lifespan. He proposed four developmental stages depending on whether power sources and target objects of power are located inside or outside of an individual. These

Table 8.1 The four developmental stages of the power motive according to McClelland

Target of power	Source of power	
	Others	Self
Self	I: Power through others	II: Self-directed power
	Strength	Autonomy
	Oral phase/ childhood	Anal phase/adolescence
Others	IV: Power benefitting others	III: Selfish power
	Mentoring	Assertiveness/dominance
	Generativity/ mature adulthood	Phallic phase/adulthood

Table based on McClelland (1975)

stages are shown in Table 8.1 and will be discussed below. The names of the stages are based on Krug and Kuhl's (2006) terminology.

In order to understand McClelland's (1975) approach, it is important to note that these four stages should be passed through in a fixed order. This does not mean that earlier stages are completely replaced by later ones. Instead, being able to access earlier developmental stages in appropriate situations is an indicator or personal maturity to McClelland. It is, however, possible that individuals fixate on a particular developmental stage, thus preventing them from reaching later stages and developing the associated behaviour of those stages. McClelland took this thought from the developmental theories developed by Freud (1938) and Erikson (1963).

During stage I the individual itself is not the source of power. However, an external source is nevertheless used to strengthen oneself. The purpose of this borrowed power is to use the strength of an authority figure in a way that is beneficial to oneself. This form of power is particularly common in children, but it can also be found when adults identify with organisations or parties that give them a feeling of strength or superiority. Because power is based on the strength of others during this stage, the individual is necessarily dependent on another person. Therefore, McClelland compares this stage to the oral phase

stage by Freud during which infants satisfy their needs primarily through their mothers.

Stage II is characterised by overcoming this dependence on the strength of others. This can usually be observed during adolescence when the individual becomes its own source of power. This power, however, continues to be used in a self-centred way. Essentially, this self-centred power means that individuals want to make decisions about their own lives and behaviour. If individuals manage to acquire many resources, realising this wish becomes more likely because they can more easily achieve independence from others. Therefore, this stage is reminiscent of the anal stage by Freud that is associated with exaggerated self-control and miserliness.

The new component during stage III is that one's own power is no longer directed exclusively at oneself. Instead, controlling others becomes important. Therefore, the wish to dominate others and be respected by them is central to this stage. This dominance over others is essentially the basis for a feeling of superiority and strength. Thus, it is selfish or (according to the terminology by McClelland, 1970, 1975 introduced in Sect. 8.1) personalised power. This is comparable to the phallic stage by Freud during which asserting one's interests is equally important.

Stage IV is the most mature form of power. Individuals themselves are no longer the source of power. Instead, power is derived from convictions and general principles. The use of power is furthermore no longer directed at oneself, but at trying to influence others in a positive way, e.g. supporting their developments as a mentor. Therefore, this form of power is beneficial to the community and constitutes socialised power (in contrast with the personalised power of stage III). It is analogous to Erikson's developmental stage of generativity which focuses on the attempt to support and dedicate oneself to others (see excursion on the relationship between the power motive and generativity).

It is important to note, however, that there is no empirical evidence for McClelland's developmental approach. It is therefore not clear if the suggested stages really represent qualitative changes of the power motive or if the behaviour expressing the motive simply changes. At the time of writing, there were no empirical findings about behavioural correlates of the power motive in children and only a few regarding adolescents (Skolnick, 1966). Those latter studies furthermore suffer from several methodological shortcomings and must therefore be taken with a grain of salt. Therefore, the suggested developmental sequence of behaviour pertaining to the power motive cannot be tested.

Excursus

Generativity and the Power Motive

Generativity describes the interest in establishing future generations, to support them and to facilitate their development (Erikson, 1963). This can be achieved in many different ways, e.g. passing on experiences, skills, knowledge and values. Such activities, however, only represent one of the possible contexts of generativity, namely, one with a communal focus. Additionally, there is also an agentic, thus self-focused, context for generativity. Creating ideas or artworks can also have a beneficial effect on future generations (see Evans, 1967). Both forms have in common that they allow the generative individual to leave a lasting impression on others (see Newton, Herr, Pollack, & McAdams, 2014).

Several scholars have noted that generativity shares conceptual similarities with the power motive to the extent that the former aims at positively influencing others, particularly younger people. For instance, Veroff et al. (1980) used generativity to explain their findings that middle-aged men have a higher power motive compared to their younger and older counterparts: according to Erikson, generativity plays a particularly important role during this part of life. McAdams (1985; McAdams, Ruetzel, & Foley, 1986)

was the first researcher to empirically establish a relationship between the power motive and generativity. As expected, the combination of the power and intimacy motives correlates positively with the strength of generative goals for the future. Although this result confirms the assumption that generativity is shaped by both communal and agentic motivational sources, the addition of these two motives raises new questions that have not been answered yet. It is, for example, not clear if and how one of them might compensate for the other if it is weak.

Therefore, it seems more promising to examine both motives separately. Peterson and Stewart (1993) showed a relationship between the power motive and particular generative attitudes, e.g. the desired number of children and the opinion that being a parent is an important source of feeling competent. It is problematic, however, that these results were not gender-neutral, but instead found primarily in women. The most extensive study so far focused on a prosocial facet of the power motive that indeed predicted a generative attitude which, in turn, predicted generative goals that the participants had generated themselves (Hofer, Busch, Chasiotis, Kärtner, & Campos, 2008). Furthermore, the study stressed that this pattern can be found in adults in Costa Rica, Germany and Cameroon. Overall, these results demonstrate that the power motive plays some role in the development of generativity. It remains to be seen how the motive might furthermore support successful handling of other developmental challenges.

In summary, more research about the development of the power motive will be needed in the future. This is true both for the developmental conditions of the power motive during childhood – particularly with a simultaneous consideration of biological and social factors – and over the course of the lifespan. Furthermore, in contrast with adults (see Sect. 8.4), it is unclear how the power motive is expressed in the behaviour of children and adolescents.

8.3 Measuring the Power Motive

As mentioned earlier, there are two motive systems that differ substantially with regard to various dimensions: implicit and explicit motives (McClelland et al., 1989). Table 8.2 provides an overview of the attributes that characterise these two motive systems.

The first question that needs to be addressed is whether the two motive systems postulated by McClelland (1987; McClelland et al., 1989) are independent of each other. Interestingly, the historical development of motive research developed exactly the other way around. Many authors complained about the problem that research on motivation yielded a large number of inconsistent findings that contradicted one another. McClelland's theory of two systems is able to solve this ostensible contradiction: inconsistent findings occurred when studies using different methodologies were compared – concretely, projective methods that measure the implicit system vs. self-report methods that

Table 8.2 Characteristics of the implicit and explicit motive systems

	Implicit motives	Explicit motives
Definition	Shaped by affect, goal-oriented networks	Motivational self-images
Representation	Non-verbal, not conscious	Verbal, conscious
Development	Conditioning in early childhood	Verbal transmission
Behavioural correlates	Spontaneous behaviour, long-term trends in behaviour	In concrete situations requiring decision-making
Measurement	Projective: PSE	Questionnaires

measure explicit motivation. Another central criticism directed towards motivational research was the observation that test scores of the same motive were frequently uncorrelated. In fact, there is strong evidence for the phenomenon that two measurements of the same motive tend to be uncorrelated if they do not hail from the same of the two aforementioned groups of tests (e.g. Köllner & Schultheiss, 2014). Even in cases in which questionnaires are constructed in a way that attempts to mirror projective methods as closely as possible, only little convergence can be found (Schultheiss, Yankova, Dirlikov, & Schad, 2009).

Which characteristics of the two motive systems are responsible for the observation that the usefulness of different methods tends to be limited to only one of them? A central difference between the systems is that implicit motives do not require consciousness, while the explicit motive system does. This means that people are not usually able to directly access their implicit motives and thus cannot provide information about them. However, McClelland et al. (1989) already assumed that it should be possible to improve access to the implicit motive system by means of introspection. Several studies have provided some evidence for this assumption: a stronger disposition to self-access (e.g. Thrash & Elliot, 2002) as well as the situational activation of motives through imagining successful goal realisation (Job & Brandstätter, 2009; Schultheiss & Brunstein, 1999) can lead to a higher awareness of implicit motives.

The unconscious implicit motive system is based on affect. Thus, it represents an emotional preference for particular situations, which means that people experience pleasure if a situation provides certain incentives. With regard to the power motive, this means that individuals with a strong power motive experience situations as pleasant in which they can feel superior. Such affective preferences are conditioned during early childhood (Sect. 8.2.4). People with a strong power motive, however, do not only enjoy such situations, but they also actively search for

them, which means that implicit motives predict two types of behaviour: spontaneous behaviour and long-term tendencies that are supported by extended transaction processes between individuals and their direct environments. On the one hand, people with a strong power motive seize opportunities to experience strength as soon as such opportunities occur. Their attention is directed towards recognising and making the best of such chances (Schultheiss & Hale, 2007). On the other hand, they tend to behave in ways that increase the likelihood that situations providing incentives for their power motive will occur in the future (e.g. by choosing a particular job: Jenkins, 1994).

The explicit motive system, however, is a cognitive system that includes self-perceptions with regard to the strength of an individual's motives. Such self-perceptions of motivation are primarily values and goals that differ from each other regarding how they affect behaviour (Jolibert & Baumgartner, 1997). Children learn them through the language used by their parents, teachers and friends (Eccles & Wigfield, 2002; McClelland et al., 1989). Explicit motives predict behaviour particularly well in situations in which individuals can choose between different behavioural options.

8.3.1 The Picture Story Exercise (PSE): The Classic Method for Measuring the Implicit Power Motive

Today the picture story exercise (PSE) is the method most frequently used for assessing implicit motives. Because implicit motives cannot be accessed consciously as discussed earlier, they need to be measured indirectly for which a projective approach can be used. Participants are shown pictures of socially ambivalent situations (Fig. 8.4 shows a common example for measuring the implicit power motive). Participants see a certain picture and are subsequently given a limited amount of time to write a story in order to

Fig. 8.4 The ship captain: example of a PSE picture with a high degree of activation of the implicit power motive (Smith, 1992a)

describe the picture. These stories are then coded by trained interpreters with regard to their content pertaining to different motives. The underlying assumption is that the more a particular person refers to a particular motive in their story, the stronger that particular motive is. Suggestions and assistance for what needs to be considered when using the PSE can be found in Schultheiss and Pang (2007) as well as Smith, Feld, and Franz (1992).

Historically, the PSE has been developed from the thematic apperception test (TAT) that was developed by Morgan and Murray (1935) for clinical diagnostics. However, the PSE can be seen as a methodological improvement on its predecessor in many ways (an overview can be found in Winter, 1998). Therefore, PSE and TAT need to be clearly distinguished from each other. Here are two examples for differences between the two methods. On the one hand, pictures used in the PSE only feature situations that often occur in everyday life and are always of social relevance, which did not apply to the TAT. On the other hand, the coding system used to identify motives in the PSE is not exclusively driven by theory, but also implements results from motive-triggering studies. Concretely, PSE stories were

coded in situations that strongly activate the power motive, e.g. while candidates for a student appointment were waiting for the disclosure of the election result (Veroff, 1957), after participants had watched a video of the inauguration speech by US President John F. Kennedy (Winter, 1973), after participants had watched how another person was supposedly hypnotised (Stewart & Winter, 1976) or after they had been asked to frustrate another person while acting as a mock experimenter in a psychological study (Uleman, 1972). Characteristics that were prominent in the stories of triggered participants, but missing or less prominent in the stories written by participants under neutral control conditions, became the basis for general rules of coding the power motive. Remarkably, after having received much criticism for its purported lack of validity (e.g. Entwisle, 1972), the PSE thus meets a central criterion of validity due to its empirically founded coding system (Borsboom, Mellenbergh, & van Heerden, 2004).

Looking at the historical development of the PSE helps with understanding how PSE stories are coded for the power motive. Before the established set of rules that is used today was developed (Winter, 1994), there were several forerunners that all contributed to the contemporary operational definition of the implicit power motive. The conception of the power motive by Veroff (1957) is essentially based on a form of avoidance motivation: the motivation to avoid the experience of powerlessness. A stronger focus on the search for positive experiences could be found in Uleman's (1972) conception that defined the power motive primarily through dominant behaviour. Winter (1973, 1994) integrated both motivational orientations in his manual. This led to moderate correlations (Winter, 1973) with the coding systems of both Veroff and Uleman. Overall, there are six criteria for coding the power motive in a story:

- Dominant behaviour with an inherent influence on others
- Control over others

Table 8.3 Examples for how to code the implicit power motive in PSE stories based on the manual by Winter (1994)

Category in the Winter manual	Example
Dominant behaviour with an inherent influence over others	"I will let you and all the other mutineers career," yelled the captain at his chief mate
Controlling others	The captain watched that passenger for days to finally discover what he was up to
Attempts to convince, persuade or influence others	The captain talked at the shipowner to dissuade him from his plan of changing the route of the cruise
Helping others without being asked	When the captain discovered the stowaway, he showed him a hiding place where he would definitely not be discovered and promised to provide him with food throughout the voyage
Addressing status, prestige, etc.	The captain was sure that he would become even more famous should he succeed in crossing the Atlantic Ocean faster than anyone had ever done before him
Strong emotional reactions to the intentions of others	The crew cheered the captain enthusiastically when he finished his ardent speech

- Attempts to convince, persuade or influence others
- Helping others without being asked to do so
- Addressing topics such as status, prestige, fame, etc.
- Strong emotional reactions to the intended actions of others

Table 8.3 shows examples of story elements taken from Winter's manual for each of the six categories as they might appear in stories written about the picture of a captain (Fig. 8.4). Further information about how to proceed once motive scores are obtained can be found in Schultheiss and Pang (2007). It should be noted that is currently being suggested that status might be an independent motive and thus independent of

power (Anderson, Hildreth, & Howland, 2015; Hays & Bendersky, 2015). For now, however, status remains one of the criteria for coding the power motive.

8.3.2 Other Methods for Measuring the Implicit Power Motive

The PSE comes with a considerable disadvantage in spite of its strengths: it is extremely time-consuming for participants and interpreters. The required time for the coding process does not only include the actual process of coding participants' stories but also the time required to train interpreters in how to reliably code texts in the first place. Unsurprisingly, several researchers have proposed alternative methods for measuring implicit motives including the power motive. Three of these instruments will be discussed briefly.

8.3.2.1 Operant Multi-motive Test

Just like the PSE, the operant multi-motive test (OMT; Kuhl & Scheffer, 1999; see also Kuhl, Scheffer, & Eichstaedt, 2003) uses ambiguous pictures as its stimuli that are shown to participants. The difference, however, is that participants are not asked to write full stories about the pictures, but instead answer several questions in written form ("What is important to the person in this situation and what is he/she doing?"; "How is the person feeling?"; "Why does the person feel that way?"; "How does the story end?"). Because of these suggestive questions, the OMT is considered to be a semi-projective method. How participants can answer is substantially reduced by how the questions are phrased. The test covers not only the power motive but also the achievement and affiliation motives. Additionally, the OMT allows for the differentiation between tendencies for five different realisation strategies of the respective motive (Kuhl & Scheffer, 1999) based on the theory of personality system interactions (Kuhl, 2001). With regard to the power motive, these strategies are prosocial power (cf. socialised power by McClelland, 1970), opportu-

nistic power (status), assertiveness, actionist power and submission/surrendering power. Empirical evidence is primarily available for the prosocial expression of the power motive, a tendency that is associated with generativity (Hofer et al., 2008) and helping behaviour (Aydinli, Bender, Chasiotis, Cemalcilar, & van de Vijver, 2014). As expected, measuring the power motive with the OMT leads to an index that is related to well-being (Kazén & Kuhl, 2011; see Sect. 8.4.2). However, the index does not interact with the personality trait extraversion (Lang, Zettler, Ewen, & Hülsheger, 2012) unlike its PSE counterpart (Winter, John, Stewart, Klohnen, & Duncan, 1998; see Sect. 8.4.1).

8.3.2.2 Multi-motive Grid

The multi-motive grid (MMG; Sokolowski, Schmalt, Langens, & Puca, 2000) is another semi-projective method that is even more suggestive than the OMT. Participants are not required to write anything in reaction to ambiguous picture stimuli; instead, they are shown a number of several possible answers and choose those with which they agree the most. Thus, participants can decide which statements are relevant to the people shown in the pictures, e.g. "The person's reputation might be jeopardised" or "The person want to exert influence by herself/himself" (these are examples for the power motive; however, the MMG also includes statements for measuring the achievement and affiliation motives). These examples show that the MMG differentiates between an approach (hoping for power) and an avoidance component (fear of power). However, the power, achievement and affiliations' motive measurements of the MMG are correlated which violates its theoretical foundation (e.g. Job, Oertig, Brandstätter, & Allemand, 2010; Kehr, 2004; Sokolowski et al., 2000). Therefore, its discriminant validity is questionable. Otherwise, MMG studies on the power motive yield expected results; e.g. individuals with a strong power motive consider the physical appearance of a potential partner to be more important (Schmalt, 2006) and benefit more from leadership competence trainings (Sokolowski & Kehr, 1999) than individuals with a weaker power motive.

8.3.2.3 Pictorial Attitude Implicit-Association Test

More recently, some researchers have started to try measuring the implicit power motive with a computer-based procedure to measure reaction times. This approach is based on the implicit-association test (IAT; Greenwald, McGhee, & Schwartz, 1998) that connects examples for a specific construct (e.g. the power motive) with a particular evaluative dimension (e.g. affective valence, self-affiliation). The implicit attitude towards the construct is indicated by the comparison between the reaction time to such pairings with other pairings in which examples for a different, potentially contradicting construct are presented. Admittedly, "example for a construct" is a complicated idea that can be explained as follows: there seems to be a difference depending on how the construct of the power motive is presented to participants. Convergent validity with the PSE cannot be found if words pertaining to the power motive are used (Sheldon, King, Houser-Marko, Osbaldiston, & Gunz, 2007), but can if pictures are used instead (Slabbinck, de Houwer, & van Kenhove, 2011, 2013). Slabbinck et al. combined pictures pertaining to the power motive (e.g. a man leaning over a table with clenched fists) and pictures without any such connotation (e.g. playing children) with positive affective evaluations such as "great" or negative ones such as "unpleasant". This differential effect follows the logic of the activation of implicit motives by pictures as seen in the methods mentioned above. Moreover, the picture-based method is not correlated with measurements of the explicit power motive. Future research will show whether approaches based on reaction times will replace the classic PSE or rather complement its use.

8.3.3   Methods for Measuring the Explicit Power Motive

Because they can be accessed consciously and contemplated, explicit motive systems can be measured with self-report methods. Several such instruments contain scales that register the

explicit power motive. The explicit motive system is usually conceptualised as a goal rather than a value construct. Values pertaining to the power motive can be measured with the Schwartz Value Survey (Schwartz, 1992) and other methods that are based on it. Further developments of this questionnaire distinguish between specific components of power as a value: prestige, control of resources and dominance (Schwartz, Cieciuch, Vecchione, Davidov, Fischer, Beierlein et al., 2012).

The classic measure for the strength of the explicit power motive is the dominance scale found on the Personality Research Form (PRF) that is based on Murray's (1938) classification of motives. The name already suggests that assertiveness represents a specific facet of the pursuit of power. Participants are asked to indicate for 16 statements about motivation how much they apply or do not apply to them. Thus, the motive is operationalised as a form of self-description in this case. In this regard, the power scale of the GOALS questionnaire (Pöhlmann & Brunstein, 1997) differs because it asks concretely for the subjective importance of power-motivated goals. Although the power motive is covered more inclusively here as status and influence, the fact that the power motive is measured with only four goals is problematic. The Unified Motive Scales (UMS; Schönbrodt & Gerstenberg, 2012) combine the items of established motive measures (such as GOALS and the Personal Values Questionnaire) in order to create a new motive scale on their basis. In so doing, however, the UMS combines motivational self-descriptions, the importance of goals and value judgments. New items are added to the already existing measures. These items represent a fear component of motivation, which is the fear of losing control and prestige in the case of the power motive. Such conceptual differences as well as the concrete research question at hand need to be considered for the choice of an appropriate instrument for measuring the explicit power motive.

8.4 Behavioural Correlates of the Power Motive

The ultimate purpose of motivational psychology is the prediction of human behaviour. How does the power motive express itself in behaviour? In fact, there are many different ways in which this can happen.

An area that has received particular attention in studies on the power motive is assertiveness. Teachers tend to rate students with a strong power motive as particularly committed to persuade others of their point of view during class discussions (Veroff, 1957). On the negative side, individuals with a strong power motive can be perceived as controlling in group settings (Kolb & Boyatzis, 1970). They are more successful in situations requiring negotiations (e.g. McClelland, 1987; Schnackers & Kleinbeck, 1975), for instance, by asking for higher wages in fictional scenarios (Trapp & Kehr, 2016). Schnackers and Kleinbeck (1975) did not only investigate how successful individuals with a strong power motive are in negotiations but also which strategies they tend to use. In their study they asked three participants to play a particular game of dice in which they should try to score as many points as possible. Individual players could maximise their total score in two ways: by using so-called power cards that showed numbers with which the numbers on the die were multiplied and by making and breaking coalitions with their opponents. Players with a strong power motive scored indeed higher than their counterparts with a weak power motive. Interestingly, they did so by being much more willing to use strategies that offered selfish benefits, e.g. breaking a coalition with one opponent if a better offer was made by the other. Similar behaviour was found in prisoners' dilemma studies in which two players need to decide covertly whether they wish to cooperate with their opponent or not. Individuals with a strong power motive tend to begin the game with a non-cooperative or confrontational strategy (Terhune, 1968).

Moreover, individuals with a strong power motive have a tendency to more frequently seek out situations in which power plays an important role. This difference can in fact be seen at the brain physiological level: Compared to people with a weak power motive, they show stronger reactions to words with a mild connection to the power motive. This advantage in processing, however, disappears when the intensity of the power motive gets bigger (Davidson, Saron, & McClelland, 1980; see McClelland, 1987). With regard to social stimuli, individuals with a strong power motive turn away from faces expressing anger and thus signalising dominance; but they turn to faces that look surprised and thus suggest that they might be easily influenced (Schultheiss & Hale, 2007). Furthermore, they are more sensitive to low-intensity expressions of anger compared to their weak power motive counterparts. This means that individuals with a strong power motive are better at recognising subtle indications of anger in the faces of others. Similar to the results reported by Davidson et al. (1980), however, this advantage once again disappears when the emotional intensity gets too high (Wang, Liu, & Yan, 2014). Accordingly, individuals with a strong power motive excel at perceiving and processing stimuli pertaining to the power motive. Because such stimuli are often of a social nature, the power motive is apparently associated with a certain level of social intelligence. This is reflected in the ability to faster recognise changes in the emotional expressions of others (Donhauser, Rösch, & Schultheiss, 2015).

The sensitivity to power is not only evident with regard to present stimuli but also in the finding that the power motive is a prominent facet of how events are remembered: The stronger the power motive, the more commonly it appears as a central topic when recalling beautiful and fulfilling life events (McAdams, 1982; see also Woike & Polo, 2001). Furthermore, the power motive is associated with the degree of reported anger in unpleasant memories. The reason might be the facilitation of assertive behaviour in order to gain control over the aversive situation (McAdams, 1982). This relationship between the degree of the power motive and memory content reflecting the motive was also

shown in a study in which students were asked to describe ten interactions with their friends: The stronger the power motive, the more frequently students reported situations in which they controlled or tried to control the interaction, for instance, by persuading their friends to do something or making plans (McAdams, Healy, & Krause, 1984). Overall, particular attention seems to be given to past situations in which the power motive was relevant.

Additionally, individuals with a strong power motive tend to attribute more importance to the social visibility of strength and feeling stronger than others. They impress others with prestigious possessions and status symbols (Winter, 1973) as well as their readiness to take risks, e.g. by placing high bets in luck-based games (McClelland & Watson, 1973). They tend to boast, surround themselves with others of lower status and those who are less assertive, and have a proclivity for gambling and competitions (Winter, 1973). Men with a strong power motive also drink a lot of alcohol (McClelland, Davis, Kalin, & Wanner, 1972). They read magazines such as "Playboy" and state to have become sexually active at a relatively young age (Winter, 1973). Moreover, the power motive was associated with sociosexuality (i.e. the frequency of sexual intercourse and fantasies as well as a liberal attitude towards sex without attachment) in men from Cameroon, China, Costa Rica and Germany (Hofer, Busch, Bond, Campos, Li, & Law, 2010). Unsurprisingly, the strength of the power motive is correlated with the frequency of sexual intercourse (McClelland, 1975; Schultheiss et al., 2003b). Female and male individuals with a strong power motive state the concern of feeling bored in a relationship (Stewart & Rubin, 1974), and in men there is even a connection with the tendency for aggressive behaviour towards a partner (e.g. Zurbriggen, 2000).

8.4.1   The Taming of the Power Motive

Overall, these findings do not paint a likeable picture of people with a strong power motive. They seem to be relentlessly searching for opportuni-

ties to extend their influence without much care for the interests of others. This negative impression is due to the fact that our discussion so far has only looked at behavioural correlates of the personalised power motive (see Sect. 8.1). The findings reported in the previous section in particular are prototypical for the personalised power motive that is primarily concerned with creating a feeling of strength and superiority. Thus, it only focuses on the emotional state of those exercising power.

However, as Schultheiss (2008) stated, the exclusive reliance on enforcing one's interests by means of pure dominance cannot be a successful strategy in the long run. As shown above, even children develop from a stage of purely directive behaviour to a combination of directive and socially acceptable strategies in order to acquire resources (Hawley, 1999). Moreover, we have already seen that individuals with a strong power motive can use their need for influence in ways that are beneficial to others (Hofer et al., 2008; McAdams, 1985; McClelland, 1975). This is what McClelland (1970) meant when he wrote about socialised power. The power-oriented professions chosen by people with a strong power motive frequently focus on helping and teaching others (Jenkins, 1994; Winter, 1973). Finally, US presidents whose inauguration speeches were characterised by a strong power motive are generally perceived as particularly successful (Winter, 2005).

Put together, the behavioural correlates of the power motive draw the same picture presented at the beginning of this chapter: Power has two faces – a personalised and a socialised one (McClelland, 1970) – and it needs to be tamed to become socially acceptable (Winter, 2006). This begs an important question about behaviour that is activated by the power motive: How can its motivational foundation be changed from the personalised form of power, which is impulsive and untamed, into the socialised form, which is more agreeable and socially acceptable? In general, studies (Hofer, Busch, & Schneider, 2015; Winter et al., 1998) suggest that the relationship between implicit motives and behaviour or experience is mediated by other personality traits such as the Big Five; for instance, in contrast to high

introversion, the power motive is associated with the subjective importance of social relations in the professional context, which includes the possibility to influence others, in the case of high extraversion (Winter et al., 1998). Unsurprisingly, other personality variables have been hypothesised to have an influence on whether the power motive takes on its personalised or socialised form when translated into behaviour (an overview can be found in Winter, 2006). Most empirical evidence has been reported for activity inhibition and the affiliation motive (see Chap. 7), some of which will be introduced here. In summary, the results have shown that the power motive can be expressed in different forms of behaviour when combined with other personality and motivational variables.

8.4.1.1 Activity Inhibition

Activity inhibition is the tendency to act in a reserved or restrained manner and suppress spontaneous motivational impulses (McClelland, 1975; McClelland et al., 1972). Just like the strength of motives, an individual's strength of this trait is measured with the PSE. Concretely, it is coded as how frequently participants use the word "not" in their stories, thus negating actions, thoughts and feelings (McClelland et al., 1972). Depending on how strong activity inhibition is in an individual, the power motive can result in different behaviour. If activity inhibition is able to tame the power motive, many types of problematic behaviour mentioned above, such as drinking a lot of alcohol, tend to be absent (McClelland et al., 1972). For instance, men with a strong power motive and simultaneous high level of activity inhibition tend to assume more offices in clubs (McClelland et al., 1972). The same effect was found for men and women in a longitudinal study over 10 years but only if the participants already had children (Winter, McClelland, & Stewart, 1982). Furthermore, individuals showing this pattern tend to be perceived as more persuasive: In a study by Schultheiss and Brunstein (2002), participants were asked to present their position on the ethical justifiability of animal experiments in a talk held for a person with an (allegedly) different point of view. Neutral

observers who analysed videos of the talks rated those given by individuals with a strong power motive and activity inhibition as more persuasive than those given by participants with different combinations of the two traits. What participants said was less relevant to this evaluation than the fluency of their presentation, their gestures and their facial expressions (in particular raising one's eyebrows).

Moreover, simultaneously high levels of the power motive and inhibition seem to be important at work. Individuals with the aforementioned pattern of both traits showed particularly high involvement at their workplace 10 years after their motives were measured (McClelland & Franz, 1992). Studies investigating managers' success at work yielded similar results. This relationship was discovered with regard to the so-called leadership motive syndrome, which is characterised by a strong power motive and activity inhibition as well as simultaneous weak affiliation motive. This combination of traits was associated with managers' success at work 8 and 16 years after entering their company (McClelland & Boyatzis, 1982). Managers with the leadership motive syndrome are not only portrayed in a fairly positive light with regard to their success at work, but they have also been characterised by a strong team spirit, conscientiousness and sense of justice (McClelland, 1975). Moreover, employees working under such managers stated a strong "we" feeling at work (McClelland & Burnham, 1976) and conformed less (McClelland, 1975). These findings, however, only apply to managers without technical obligations whose job was primarily to interact with others rather than solve technical problems. More recent studies question furthermore whether a weaker affiliation motive is truly necessary for the leadership motive syndrome. This assumption might merely be a methodological artefact of earlier studies; in fact, a stronger affiliation motive might be beneficial (Steinmann, Dörr, Schultheiss, & Maier, 2015).

8.4.1.2 Affiliation Motivation

From early on researchers assumed that a strong need for social relations might have an attenuating effect on the power motive (McClelland, 1975). McClelland's approach was to code several written historical documents as well as children's books and schoolbooks from various countries for their inclusion of the affiliation and power motives. His rationale was that the different texts could be seen as motivational representations of the conditions present at their respective times in history. Remarkably, the analysis of US documents painted a very clear picture. Throughout American history violent conflicts are preceded by times characterised by a strong power motive alongside a weak affiliation motive (McClelland, 1975). An interpretation of these results is that growing up with texts that address the power motive more frequently than the affiliation motive increases the risk of children to become violent adults. Similarly, Winter's (1993) analysis of documents penned by heads of states during various international crises showed that the same motive combination was associated with outbreaks of war. By making it easier to make concessions to opponents, a strong affiliation motive works against the power motive in times of crisis. This is not only true in analyses of political documents. Langner and Winter (2001) found the same relationship in a laboratory setting in which students were asked to write responses to real documents from the time of the Cuban Missile Crisis.

However, under certain circumstances, the affiliation motive can also be directed in ways that might justify violent behaviour. According to McClelland's (1975) text analysis, a strong affiliation motive should attenuate the destructive force of a strong power motive. Documents from the time of the Crusades, however, were characterised by simultaneously strong expressions for both motives. In an analogous manner, written documents by terrorist groups are also characterised by strong power and affiliation motives even though the latter is limited to their own in-group (Smith, 2008).

Overall, however, a strong affiliation motive tends to move the power motive from its personalised to its socialised form. Accordingly, individuals with a strong need for social relations do not exploit their assigned power (Rios et al., 2015), are more willing to help others (Chen et al., 2001), treat partners in simulated negotia-

tions more fairly (Blader & Chen, 2012) and are less demanding in fictional wage negotiations (Trapp & Kehr, 2016).

8.4.2   Power and Well-Being

Well-being is a crucial criterion for ensuring that psychological properties and behaviours can function properly. But does power make people happy? Different authors have come to different conclusions. Proponents of self-determination theory identify the pursuit of power as related to extrinsic motivation and thus do not see power as beneficial to an individual's well-being (e.g. Ryan, Huta, & Deci, 2008). Here, well-being is defined in a fairly specific way, namely, by whether or not certain needs can be satisfied. If, however, well-being is defined as a high level of positive affect, a low level of negative affect and a high degree of life satisfaction in self-reports, we might end up at a different conclusion.

Without a doubt the power motive can reduce well-being, for instance, if the realisation of the motive is frustrated (see findings on power stress by Fodor et al., 2006; or Fodor & Wick, 2009) or if it results from a feeling of powerlessness (Veroff, 1982). If the motive is frustrated for an extended amount of time, the frustration can even have a harmful effect on an individual's health, which has been shown in various studies (see the overview by Jemmott, 1987), including a sample

of convicts (McClelland, Alexander, & Marks, 1982). The negative relationship between a frustrated motive and well-being is, however, not limited to the power motive, but can in fact be found for other motives as well.

On the other hand, many findings suggest that wielding power is associated with optimism (Anderson & Galinsky, 2006), positive affect and life satisfaction (see overview in Keltner et al., 2003). For instance, participants who are put in a position of power by chance report more positive emotions than their subordinates (Berdahl & Martorana, 2006). Power facilitates behaviour that is in accordance with an individual's dispositions, which might be one possible explanation for the relationship between power and well-being (Keltner et al., 2003). Accordingly, people whose actions are based on power experience themselves in a more authentic way (Kifer, Heller, Perunovic, & Galinsky, 2013). The implicit power motive can also have an impact on well-being. People tend to experience the pursuit of power goals as particularly pleasant if their implicit power motive is strong (Hofer, Busch, Bond, Li, & Law, 2010; cf. Kazén & Kuhl, 2011), i.e. when their explicit and implicit power motives match. It is therefore up to the implicit motive to decide whether pursuing certain goals increases a person's well-being (see info box). This effect is known as power congruence and has been documented in several studies (see Chap. 9).

Study

Motive Congruence in the Case of the Power Motive

Hofer, Busch, Bond, Li and Law (2010) documented motive congruence in the case of the power motive using a fairly elaborate design that allowed them to answer several research questions. For determining motive congruence, i.e., whether the strengths of the implicit and explicit power motives matched, they did not only use the PSE, but also two methods for measuring explicit motives: power goals (GOALS question-

naire) and values (Schwartz Value Survey). As has been discussed earlier, values and goals differ from each other with regard to their degree of abstraction and thus in how they affect behaviour. Values form the backbone of behaviour that determines which concrete goals people choose; and these goals then become evident in observable behaviour (Jolibert & Baumgartner, 1997). The first research question thus concentrated on the differentiation between power values and power goals. Concretely, the authors hypothesised that motive congru-

ence effects can be found for goals, but not for values.

The second question addressed how broadly the expected effects can be generalised. In order to avoid a potential Western cultural bias (Henrich, Heine, & Norenzayan, 2010), the study used participants from Germany as well as Hong Kong and China. Even though Hong Kong is part of China today, two different cultures were assumed by the authors due to their historical separation, making it more acceptable for individuals from Hong Kong to pursue autonomy. Put simply, Germany thus represented an individualistic culture, China a collective culture and Hong Kong a mixed form (Hofstede, 2001). If the relationship between motive congruence and well-being was an exclusively Western cultural phenomenon, it should not be found in the other two samples.

The results confirmed the expectations: An effect of motive congruence between the implicit power motive and power goals was

found for subjective life satisfaction and positive affect in participants' self-reports. This was not true for power values. The results were comparable across the three samples. The findings for positive affect in the whole sample of all three cultures are illustrated in Fig. 8.5.

These results highlight that values and goals are distinct representations of the explicit power motive that do not necessarily match. Moreover, they demonstrate that the pursuit of goals benefits well-being particularly if the respective goal matches the implicit motive system. Thus, if its pursuit supports the implicit power motive, achieving the goal substantially increases well-being. The fact that this effect can be shown across three different cultural groups suggests that the notion of motive congruence can be generalised quite broadly. Regardless of cultural context, implicit motives seem to function as a weighing influence of the emotional gains associated with goal achievement.
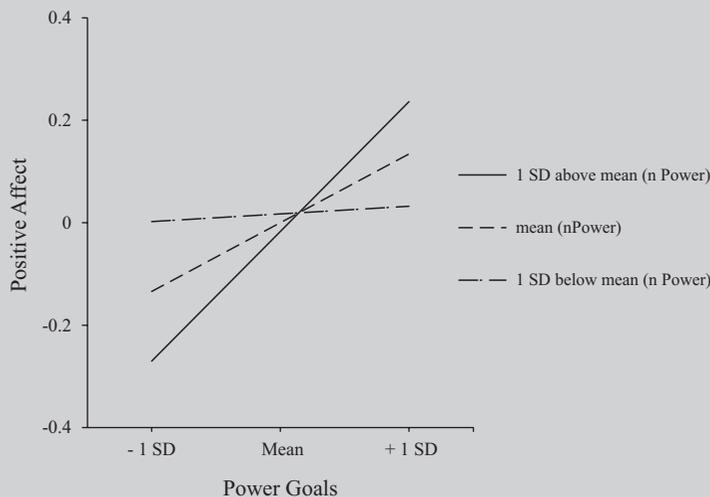
Fig. 8.5 Motive congruence in the case of the power motive: the relationship between positive affect and the strength of the implicit power motive as well as the importance of explicit power goals (Fig. 2 in Hofer, Busch, Bond, Li, & Law, 2010)

The power motive does not only affect general well-being but also satisfaction in specific areas. The power motive influences, for instance, job satisfaction (Jenkins, 1994) – including powerful jobs such as the US presidency (Winter, 2005) – and relationship satisfaction if relationships let people experience a feeling of strength (Job, Bernecker, & Dweck, 2012).

8.5   Conclusion

The power motive is defined as an individual's inclination towards experiencing positive affect in reaction to exerting influence over the thoughts, feelings and behaviours of others. In contrast, being influenced by others or facing resistance is experienced as aversive. The implicit power motive is measured with projective instruments because it cannot be accessed consciously.

From the perspective of social sciences, power is an important dimension because it supports the formation of social structures and the regulation of communities. For individuals, power has many evolutionary advantages because it enables them to gain and secure resources and enhances their reproductive success as has been shown in studies with non-human primates. This is further supported by the systematic relationship between the power motive and the sex hormones testosterone and oestradiol.

Interindividual differences in dominance can already be found in human children. However, children have to combine different behavioural strategies for acquiring resources in order to be socially successful in the long run. Essentially, the power motive has two distinct faces that lead to dramatically different behaviour: Personalised power supports the inconsiderate pursuit of personal interests, whereas socialised power has an explicitly social focus. The ambivalence of the power motive creates a fascinating, albeit complicated, field of inquiry.

Although there are assumptions and empirical evidence for the circumstances under which the power motive is expressed in its socialised form, past research has sadly neglected the developmental psychological perspective. Future research should address this question because

adjustments during childhood might be able to set the course for a preference for socialised power later in life. Available evidence does in fact suggest that the power motive is developed in early childhood when individual differences in the strength of the motive are shaped. However, it is not yet clear how children express the motive in their behaviour and how adults can influence relevant behaviour. The understanding of how to tame the power motive has many real-life implications. How can conflicts be solved in amicable ways? How can leaders motivate their employees without succumbing to the temptation of abusing their efforts for their own interests?

Such questions illustrate the inherent conflict of the power motive: on the one hand, the personalised power motive as the destructive abuse of power for personal gains and, on the other hand, the socialised power motive as the productive use of power for benefitting the cumulated interest of a group. Over the course of the last few decades, research has made many contributions to a better understanding of both sides of the power motive as rooted in the common motivation to exert influence over others. The results collected in this chapter can hopefully provide a solid foundation for putting our knowledge about the beneficial and the destructive sides of the power motive to use.

Review Questions

1. *Under which conditions does power stress occur?*

   Overall, three conditions need to be met for power stress to occur. First, the power motive must be activated by a situation promising an opportunity to exert influence. Second, the power motive must be frustrated, e.g. because interaction partners resist influence or act in a dominant way themselves. Lastly, the power motive of the individual in question needs to be high in order to experience power stress in reaction to the situation. Individuals with a weak power motive do not feel power stress.

2. *What can we learn about dominance from observing non-human primates?*

Dominance can be seen as a relatively stable personality trait in non-human primates as well. From an evolutionary perspective, this makes sense because dominance facilitates the access and protection of resources. Indeed, there is a relationship between dominance and evolutionary success in non-human primates, e.g. the high rate of survival of the offspring of dominant female gorillas. However, because resources are also essential to human survival, it seems likely that the pursuit of dominance has also developed as a motive in human evolution.

3. *What is the relationship between the power motive and the sex hormone testosterone in men?*

Although there is some evidence suggesting a relationship between the power motive and baseline testosterone in men, considering situational contexts such as competitions provides much more information. Depending on the outcome of a competition, there are two potential mechanisms influencing the release of testosterone. Arousal prior to a competition (i.e. a situation promising a feeling of dominance) engenders the release of epinephrine/norepinephrine, which in turn stimulates the release of testosterone. If, however, an individual is defeated in a competition, cortisol is released and inhibits the release of testosterone. Both mechanisms are influenced by the strength of the implicit power motive, which means that the stimulation or inhibition of testosterone is stronger in men with a strong power motive than in their counterparts with a weak power motive.

4. *What can we say about the development of the implicit power motive based on empirical research so far?*

The strength of the implicit power motive in adults at the age of 30 was associated with specific parenting behaviour that their mothers had reported in an interview 25 years earlier. In particular, a positive relationship was found for aggressive behaviour and behaviour with sexual connotations, i.e. the more tolerant mothers reacted to such behaviour in their children, the stronger was their power motive later in life. This finding contradicts the historically prominent deficit hypothesis of power motive development. Differences across children in the frequency of such behaviour pertaining to the power motive that might be influenced by how parents socialise their children are to a certain extent potentially caused by differences in testosterone concentration in utero.

5. *What are the "two faces of power"?*

The power motive can lead to two distinct types of behaviour. On the one hand, personalised power leads to behaviour focusing on the inconsiderate experience of personal strength and superiority. On the other hand, socialised power focuses on benefitting the interests of a larger group. There are several personality traits that can direct behaviour motivated by power towards its personalised or its socially agreeable form. For instance, the relationship between the power motive and inconsiderate behaviour is particularly strong if the affiliation motive or activity inhibition is weak in a person.

6. *What is the relationship between power and well-being?*

Power is associated with higher levels of positive affect and subjective life satisfaction. One explanation for this relationship is that power shapes behaviour and individuals experience their own behaviour as more authentic. Moreover, there is an effect of power congruence for the power motive, i.e. the pursuit of power goals is experienced as particularly satisfying if the

implicit power motive is also strong. A long-term frustration of the power motive is detrimental to well-being and can even negatively affect a person's health.

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