RESEARCH ARTICLE

The contribution of need fulfilment to quality of life: A reflection on the relation between the needs-based model of quality of life and Max-Neef's theory of Human Scale Development

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ABSTRACT

The Needs-based model of quality of life has been employed in the development of a wide range of disease-specific quality of life measures over the last 20 years. The model argues that disease prevents need fulfilment and that effective interventions enable individuals to satisfy more of their fundamental human needs. Rather than adopting an existing theoretical framework, the needs-based model developed through grounded theory techniques. Several theories of needs have been advanced during the last 70 years, many of which are well known. This article relates the needs-based model of quality of life to the major published theories of human needs. Several of the theories focus on the development of societies rather than individuals – dependent on the disciplines and interests of the authors; who include sociologists, economists and psychologists. Most theorists also believe that there is a hierarchy of needs. The needs theories suggest that there are varying numbers of fundamental needs, but these tend to overlap across the theories. Statistical analyses of data collected with the needs-based quality of life measures support the view that there is a single, fundamental need.

1. Introduction

Throughout history philosophers and scientists have been interested in the relation between quality of life (QoL) and human needs. For example, Sir Thomas More (1516) argued that life quality is dependent on the fulfilment of human needs, including; health, mobility, nutrition and shelter. In recent years, a needs-based model of quality of life (NBQoL; McKenna & Wilburn, 2018) has also been widely applied in the development of disease-specific outcome measures developed for use in clinical research and trials. The aim of this article is to consider further the role of need fulfilment to QoL. The major motivation theories are considered briefly, with more attention given to Max-Neef's theory of Human Scale Development (Max-Neef, Elizalde, & Hopenhayn, 1992). This is because this theory links well with the NBQoL widely applied in health outcomes. Issues of the dimensionality of needs and QoL are also considered.

2. The Needs-based model of quality of life (NBQoL)

NBQoL is concerned with the extent to which individuals with chronic ill health can meet their needs (McKenna & Wilburn, 2018). Disease inhibits need fulfilment by interfering with an individual's attributes and ability to function. Effective interventions remove the inhibitors and / or allow satisfaction of the needs. This can either happen quickly or after some time. For example, where disease prevents someone from making new friendships, improved mobility or self-esteem following clinical treatment may free the person to develop friendships over time.

Content for the NBQoL instruments is generated directly from relevant patients by means of qualitative interviews (see for example: Heaney et al., 2018; Heaney et al., 2019). In this way, it is possible to ensure that the content of the final questionnaire is highly relevant to future respondents. Items in the needs-based questionnaires ask about satisfiers that are currently unmet. When quality of life (QoL) improves fewer of these remain unfulfilled. In other words, need fulfilment is inferred from responses to questions asking about the status of relevant satisfiers.

3. Disciplines that have adopted a needs approach

The role of human needs in motivating behaviour and providing satisfaction has been recognized in many disciplines, some of which are listed below.

3.1. Social work

Charlotte Towle was the first to consider human needs to be important to social work (Towle, 1945). She argued that social workers needed to understand how human needs are inter-related and believed that universal needs such as food, clothing and housing are required for physical health and mental health. She believed that such basic needs must be fulfilled before the need for independence could be met.

Gil (1992; 2004) also argued for a hierarchical set of human needs, including; meaningful relationships and employment. Where these are satisfied, a sense of security could result which would then enable self-actualization and spiritual needs to be met. He believes that social justice can only be achieved once human needs have been addressed (Gil, 2004).

3.2. Conflict resolution

Human Needs Theory (Burton, 1990) is concerned with how conflicts can be managed in order to satisfy basic human needs. Burton identified security/safety, identity, and personal development as needs that must be addressed in the resolution of international conflicts. On a more local level, if a state fails to fulfil the needs of families and communities, violence can result (Doucey, 2011).

3.3. Employment

Marie Jahoda's research showed that unemployment is detrimental to health as needs for time structure, social contact, collective purpose, physical activity, and status are not met (Jahoda, 1981). This work was confirmed by Karsten and Batinic (2010) who found that employed people reported higher levels of satisfaction of these needs (except status) than people who were unemployed.

3.4. Human rights

The importance of need fulfilment to the quality of human life has been demonstrated in the context of human rights and justice. Hassoun (2013) has argued that malnutrition, poor housing and environmental hazards indicate bad societies. High risk of mental and physical illness may result from unmet emotional and social needs.

3.5. Health

Towards the end of the 20th Century the importance of need fulfilment to health was demonstrated. Minshull, Ross and Turner (1986) proposed the Human Needs Model of Nursing. This model recognised the importance of both unmet basic and psychological needs. Need fulfilment was also found to be important to the relation between work–life balance and wellbeing (Gröpel & Kuhl, 2009). The Basic Psychological Needs in Exercise Scale was advanced to investigate the role of need fulfilment in willingness to take part in exercise programmes (Vlachopoulos & Neikou, 2007). Need for competence predicted exercise attendance, adherence and discontinuation. However, Greaves, Poltawski, Garside and Briscoe (2017) pointed out that the behaviour changes necessary for weight loss are incompatible with fulfilling psychological needs.

4. Major theories of motivation

Application of need theories can be traced back to the work of psychologists who became interested in the role of needs in the science of motivation in the middle of the 20th Century. 'Motivation' can be defined as those forces within individuals that push or propel them to satisfy fundamental needs (Yorks, 1976). The main theories of motivation are presented next.

4.1. Maslow's hierarchy of needs

Maslow (1943) proposed his hierarchy of needs in 1943. He identified distinct groups of needs; physiological, safety, belonging / love, esteem and self-actualization (becoming the best person that one can possibly be) and argued that these form a hierarchy. The theory suggests that the more basic needs must be met before the individual will be concerned about higher level needs. This theory has been widely adopted, particularly in the field of management. However, there has been criticism about the theory and little evidence that needs are ranked in this way (Wahba & Bridwell, 1976).

4.2. Herzberg's two factor theory

Herzberg and colleagues developed the two-factor theory of motivation in the 1950s from interviews conducted with employed people in Pittsburgh (Herzberg, Mausner, & Snyderman, 1959). They argued that certain factors directly motivate employees to work harder (motivators). Motivators are concerned with specific aspects of the job; for example; whether the work is interesting, can provide additional responsibility and provides opportunities for promotion. At the same time, other factors, rather than motivating people, would demotivate employees if not present (hygiene factors). The hygiene factors surround the job and include adequacy of salary and working conditions. This theory is still well regarded but satisfaction and

dissatisfaction are generally conceived of being on a single outcome scale.

4.3. McClelland's need for achievement (N-Ach)

N-Ach refers to an individual's desire for significant accomplishment, mastering of skills, control, or high standards (McClelland, 1951). The term is associated with certain actions, including accomplishing difficult challenges, having long term goals and having a need to win. The need is influenced by internal drives (intrinsic motivation) and the expectations of others (extrinsic motivation). N-Ach motivates an individual to succeed in competition and to excel in activities that they consider important.

N-Ach is related to the difficulty of tasks people choose to undertake. Those with low N-Ach may choose easy tasks to reduce the chances of failure. Conversely, they could select difficult goals where failure would not appear to be embarrassing. People with high N-Ach are considered likely to choose moderately difficult tasks that are challenging but achievable.

The N-Ach theory focuses on needs for achievement, power, and affiliation but ignores basic needs such as food, shelter and safety. Other theorists have argued that such needs must be satisfied first before considering higher level needs. However, it can be argued that in more developed societies, such basic needs are assumed to have been fulfilled.

4.4. Alderfer's ERG theory

Alderfer's theory (1969) is closely related to Maslow's Hierarchy of Needs. However, he suggests that there are three fundamental needs:

- Existence - the need for basic material existence.
- Relatedness - the need for interpersonal connections, social status and recognition.
- Growth - the need for personal development.

Alderfer also proposed that when needs in a higher category are unmet, individuals try harder to fulfil needs in a lower category. While there is more empirical backing for ERG than for Maslow's theory, there is limited support for Alderfer's theory (Landy & Becker, 1987).

4.5. Doyal and Gough's Theory of Human Need

The Theory of Human Need (Doyal & Gough, 1991) considers the role of human needs in the context of social assistance provided by the welfare state. The authors believe that an individual's needs represent "the costs of being human" in society. When a person's needs are not met the individual will function poorly.

Everyone has an interest in avoiding serious harm that prevents them from attaining what is good, regardless of what that is. Individuals require the capacity to participate in the society in which they live. This is achieved by having good physical health and personal autonomy. The latter is defined as the ability to make informed choices about what (and how) this should be done. This, in turn, requires mental health, cognitive skills and opportunities to participate in society's activities and collective decision-making.

Doyal and Gough (1991) suggest twelve categories of 'intermediate needs', including the basic needs of healthcare, security and education. Finally, they argue that the satisfaction of human needs cannot be imposed "from above".

4.6. Deci and Ryan's self-determination theory (SDT)

Self-determination theory (Deci & Ryan, 2000; Ryan & Deci, 2000) is a psychological theory that assumes that people are active organisms who seek psychological growth and development.

The authors refer to this as intrinsic motivation – the tendency to seek challenges, novelty and learning. Individuals also try to integrate the social practices and values of those around them. SDT is concerned with the choices people make without external influence and interference, and focuses on the extent to which behaviour is self-motivated and self-determined. Deci and Ryan believe that the needs for competence, autonomy, and relatedness are universal, innate and psychological.

SDT has generated a great deal of research and is widely applied in health and education. Results suggest that SDT is a viable conceptual framework to study the antecedents and outcomes of motivation to change health-related behaviours (Ng et al., 2012).

5. Max-Neef's theory of Human Scale Development (HSD)

The theory of HSD focuses primarily on the satisfaction of human needs within societies (Max-Neef et al., 1992). Max-Neef's conception of human needs stemmed from the tradition of Eudaimonia. Unlike hedonism, Eudaimonia is concerned with living well, flourishing and being able to fully participate in society (Brand-Correa, Martin-Ortega, & Steinberger, 2018). The theory argues that the best development process will be "that which allows the greatest improvement in people's quality of life" (Max-Neef et al., 1992 p. 16). QoL is defined as "the possibilities people have to adequately satisfy their fundamental human needs" (Max-Neef et al., 1992, p.16). This argument is closely aligned to that underlying the development of the NBQoL.

Unlike Maslow, Max-Neef and colleagues argue that "Human needs must be understood as a system: that is, all human needs are inter-related and interactive. With the sole exception of the need for subsistence … no hierarchies exist within the system. On the contrary, simultaneities, complementarities and trade-offs are characteristics of the process of needs satisfaction" (Max-Neef et al., 1992, p. 17).

Max-Neef et al. (1992) claim that the literature has failed to differentiate the fundamental difference between needs and the satisfiers of those needs. For example, food and shelter are satisfiers of the need for Subsistence, rather than being needs in themselves. Similarly, education, study and meditation are satisfiers of the need for Understanding. Health and preventive systems are satisfiers of the need for Protection. "A satisfier may contribute simultaneously to the satisfaction of different needs or, conversely, a need may require various satisfiers in order to be met" (Max-Neef et al., 1992, p. 17). It is important to note that a satisfier is the way in which a need is expressed.

NBQoL also focuses on the role of satisfiers (enablers) and inhibitors in need fulfilment (Heaney et al., 2019). While socialisation is not itself a need, it has the possibility of satisfying several needs. Individuals who are unable to socialise as a result of disease may well lose out on Affection, Participation and Creation.

The theory of HSD postulates that fundamental human needs are finite, few and classifiable. Furthermore, they are the same in all cultures and throughout history. What changes, over time and between cultures, is the way by which the needs are satisfied. Indeed, a culture can be defined by its choice of satisfiers.

Any fundamental human need that is not adequately satisfied indicates human poverty. For example, "poverty of subsistence (due to insufficient income, food, shelter, etc.); of understanding (due to poor quality of education), of participation (due to marginalization and discrimination of women, children and minorities)" (Max-Neef et al., 1992, p. 18-19). Max-Neef et al. (1992) argue further that each poverty generates a pathology. The understanding

of these collective pathologies requires transdisciplinary research and action.

Needs, conceived of as deprivations, are often considered to be those that create a feeling that "something which is lacking is acutely felt" (Max-Neef et al., 1992, p. 24). However, needs can also engage, motivate and mobilize people. In this way needs have a potential to become a resource. The need to participate is a potential for participation, just as the need for affection is a potential for seeking friendships and partners.

5.1. HSD Matrix of needs and satisfiers

HSD theory proposes nine groups of needs; Subsistence, Protection, Affection, Understanding, Participation, Idleness, Creation, Identity and Freedom (Max-Neef et al., 1992). Subsistence is probably better understood as Survival in English, Idleness as Contemplation and Freedom as Autonomy. He also provides examples of potential satisfiers for these needs. These are split into four categories, 'being', 'having', 'doing' or 'interacting.' Max-Neef admits that there is not a good English translation for 'interacting', suggesting that it covers locations and milieus (as times and spaces). It is not specified why this division of satisfiers was made.

Being is made up of personal or collective attributes or qualities, generally expressed as nouns. Having covers institutions, norms, mechanisms, tools, laws, etc. that can be expressed in one or more words. Doing registers actions, personal or collective, that can be expressed as verbs. The interacting column addresses the settings where the satisfiers operate. It stands for the Spanish 'Estar' or the German 'Befinden', in the sense of time and space. Since there is no corresponding word in English, Interacting was chosen.

The need for Affection has 'being' satisfiers that include; self-esteem, passion and sense of humour. The 'having' satisfiers include; friendships, family and partners. The 'doing' satisfiers include; making love, taking care of others and appreciation. Finally, the Interacting satisfiers include; privacy, intimacy and togetherness.

Satisfiers differ in nature and can even become barriers to need fulfilment. The arms race, exile and censorship are considered violators or destroyers that can prevent need fulfilment over time and the fulfilment of other needs.

Pseudo-satisfiers are elements which generate a false sense of satisfaction of a given need. Though not aggressive like violators or destroyers, they may prevent the possibility of satisfying the need they were originally aimed at fulfilling. Their main attribute is that they are generally induced through propaganda, advertising or other means of persuasion. Examples include; stereotyping (Understanding), status symbols (Identity) and charity (Subsistence).

Inhibiting satisfiers generally over-satisfy needs, consequently preventing the satisfaction of other needs. They generally share the attribute of originating customs, habits and rituals. Max-Neef and colleagues argue that, for example, an over-protective family satisfies the need for Protection but could adversely influence the satisfaction of Affection, Understanding, Participation, Idleness, Identity and Freedom.

Singular satisfiers satisfy one specific need but are neutral regarding the other needs. Examples include insurance policies (Protection), nationality (Identity) and gifts (Affection).

Synergic satisfiers satisfy a given need while also contributing to the fulfilment of other needs. For example, breast feeding satisfies Subsistence while also aiding Protection and Affection. Preventive medicine helps Protection while also aiding Understanding, Participation and Subsistence.

Table 1 shows the matrix of needs as defined in HSD theory, with examples of satisfiers related to 'being', 'having', 'doing' and 'interacting' with these needs (Max-Neef et al., 1992). It is not immediately clear from the matrix what 'interaction' represents, other than the location where needs may be satisfied. It is also unclear how 'being' and 'having' differ in all cases.

Table 1: Matrix of needs (adapted from Max Neef et al. 1992)

Need category	Being	Having	Doing	Interaction
Subsistence	Health Adaptability	Shelter Work	Eating Procreating Working	Living environment Social setting
Protection	Autonomy Solidarity	Health systems Social security Family	Cooperating Taking care of Planning	Social environment Dwelling
Affection	Self-esteem Tolerance	Friendships Family Relation with nature	Making love Cultivating Sharing	Intimacy Home
Understanding	Receptiveness Discipline	Education Communication policies	Studying Experimenting Meditating	Schools Universities Family
Participation	Solidarity Respect	Rights Responsibilities Work	Cooperating Obeying Dissenting	Parties Churches Family
Idleness	Curiosity Tranquillity	Games Parties	Day dreaming Fantasising Relaxing	Privacy Free time Landscapes
Creation	Passion Inventiveness	Skills Work	Inventing Building	Workshops Cultural groups Free time
Identity	Consistency Self-esteem	Values Symbols Religion	Integrating Committing Confronting	Social rhythms Everyday settings
Freedom	Assertiveness Autonomy	Equal rights	Choosing Risk taking Differing from others	Temporal / spatial plasticity

5.2. Distinctions between HSD and NBQoL

The HSD and NBQoL models have several similarities. Both argue that QoL is dependent on need fulfilment and both recognise the role of need satisfiers. However, HSD is primarily targeted at the development of societies rather than individuals: "It is necessary to analyse to what extent the environment represses, tolerates or stimulates opportunities. How accessible, creative or flexible is that environment? …. how far are people able to influence the structures that affect their opportunities?" (Max-Neef et al., 1992, p. 24). This applies particularly to the 'having'

column where needs are satisfied or inhibited by the policies of the State. Such policies will have an important impact on an individual's QoL, as will many other variables including, personal resources, the local environment, transport systems, personality and education. Their impact is dependent on the extent to which they satisfy or inhibit fundamental human needs.

NBQoL is only concerned with the individual. Furthermore, while HSD considers all aspects of individuals' lives, the NBQoL is (currently) primarily concerned with the impact of disease on QoL. It is possible to reconsider the matrix on an individual level (see Table 2). This table adapts the matrix as defined in the theory of HSD for use with individuals. It also includes examples of inhibited satisfiers taken from different NBQoL measures. It should be noted that, beyond having good health, subsistence is not a major concern to patients in Western Europe, where safety nets exist for individuals without food and shelter. Items have not been included under the heading of location. This column is used to suggest the settings where needs could be met. Relatively few items have been generated from NBQoL interviews that fall into the need for Creation. It seems that interviewees with chronic diseases have limited opportunities to satisfy needs in this category.

Table 2: Matrix of individuals' needs with examples of item content taken from NBQoL measures.

Need	**Attribute**	**Having**	**Doing**	**Location**
Subsistence	Health Equilibrium Hygiene *Never feels well*	Food Water Shelter *Lost interest in food*	Hunting Working Resting *No time to sit down*	Home Employment
Protection	Caution Adaptability Collaboration *Careful about what eats*	Security Vigour Health services *Feels vulnerable on own*	Planning Cooperating Socialising *Difficult to plan*	Home Environment
Affection	Self-esteem Tolerance Sensuality Respect *Has low self-esteem*	Friendships Partners Family *Worry about neglecting people*	Loving Emoting Sharing Touching *Can't bear being touched*	Home Social setting Employment
Understanding	Receptivity Curiosity Intuition Rationality	Education Communication Work	Studying Investigating Experimenting Meditating	Home Educational establishment Work

	Can't take in what people say	*Reluctant to answer door or telephone*	*Hard to concentrate*	
Participation	Humour Hygiene *Never feels clean*	Rights Responsibilities Work *Avoids responsibility*	Cooperating Sharing *Can't share feelings with others*	Home Employment Social setting
Idleness	Curiosity Imagination Tranquillity *Often loses temper*	*Leisure* *Pleasure* *Peace of mind* *Condition always on mind*	Relaxing Daydreaming Fantasising Having fun *Find it hard to relax*	Home Social situation
Creation	Imagination Curiosity Passion *Don't like to know what's going on*	Skills Employment Abilities *Doubt ability to do good job*	Working Inventing Building *Can't put effort into anything*	Home Employment Educational establishment The Psyche
Identity	Self-esteem Consistency Assertiveness *Affects self-image*	Family Employment Values Roles *Losing role*	Making decisions Growing *Difficult to make decisions*	Home Employment Social setting
Freedom	Autonomy Assertiveness Self-esteem *Dependent on others*	Mobility Choices Opportunities *Limited where can go*	Choosing Asserting Dissenting *Have to fit in with others*	The World The Psyche

6. The dimensionality of QoL

It is commonly stated that QoL is a multidimensional outcome and that it is essential to measure several different variables, such as pain, physical mobility and social functioning. (Bovis et al., 2018; Pud et al., 2008; Shoup, Gattshall, Dandamudi, & Estabrooks, 2008). This is a misunderstanding that illustrates the lack of a theoretical basis for most patient-reported outcome measures (McKenna, Heaney, & Wilburn, 2019). Health-related quality of life (HRQL) is a different outcome from QoL as defined by NBQoL. HRQL measures produce a profile of different outcomes, each of which should be unidimensional (Ziegler & Hagemann,

2015; Stucky & Edelen, 2014). However, we can conceive of NBQoL as fitting onto a visual analogue scale running from very poor QoL to very good QoL.

As has been seen above, different theorists have disagreed about the number of needs that people have. It is also possible to see where needs are equivalent across theories. Satisfiers may contribute to fulfilling different needs and it may require several different satisfiers to satisfy a specific need. Indeed, the needs categories can overlap. Consequently, it seems illogical to consider QoL to be a multi-dimensional construct (Linacre, 2009). NBQoL has always considered QoL to be unidimensional and expressible as a single digit. Indeed, all needs-based measures fit the Rasch model – indicating that they are unidimensional (see for example: Wilburn, McKenna, Twiss, Kemp, & Campbell, 2015; Wilburn, et al., 2018; Hagell, Rouse, & McKenna, 2018; McKenna, Heaney, Wilburn, & Stenner, 2019). Perhaps it is necessary to conceive of QoL as representing the extent to which a single overarching need is fulfilled. If this is the case then subsistence, affection, participation, identity, freedom etc. could also be considered satisfiers rather than needs.

What is far from clear is what such a single need might be. Glasser (1999) proposed that there is only one fundamental need. He argued that people are motivated by the basic need for survival. Doyal and Gough (1991) also argue that the Universal Goal (need) is the avoidance of serious harm.

7. Summary

It has been argued that an individual's QoL is dependent on the extent to which their fundamental human needs are fulfilled. This NBQoL model has been employed for the development of several disease-specific QoL measures that have been widely utilised in clinical research. Needs models have also been employed in a range of other disciplines. The needs theories developed from research into motivation conducted by psychologists in the middle of the last Century. A review of the major theories identified the theory of HSD as having several commonalities with NBQoL. Neither assumes that there is a hierarchy of needs and both distinguish needs from satisfiers. Rather than measuring the needs directly, attention is given to whether the relevant satisfiers are met. Rasch analysis of the NBQoL measures has consistently shown that they provide unidimensional measurement, even though they each appear to be measuring a range of needs. This raises the possibility that there is a single, overarching need that drives QoL.

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