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Religiousness Associated with Type 2 Diabetes Care Management: A Concept Analysis

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Abstract. The concept of religiousness role on the type 2 diabetes care management has not clearly explained. Terminology of "religiousness" and "spirituality" are sometimes confused and broadly explained. We applied Walker and Avant's concept analysis model to explore the meaning of religiousness on diabetes management among type 2 diabetes patients through selecting a concept, determining the analysis purpose, identifying a model case, investigating attributes, antecedents, and consequences, as well as defining empirical referents. The findings identified attributes of religiousness role in diabetes care management context including religious belief, religious practice, religious support, and religious coping. Antecedents included age, gender, education, race or ethnicity, religions, income, employment. Glycemic control and psychological well-being were documented as consequences. Health care provider might consider the antecedent as or inhibitor factors to impede the expected outcome. Further research might need to take religiousness role into account to type 2 diabetes care management intervention

Keyword: religiousness, type 2 diabetes, diabetes care management, concept analysis

INTRODUCTION

Diabetes is a metabolic chronic disease caused by hyperglycaemia (1). The impact of diabetes on physical burden was well reported (2), however patient with diabetes might experience more than just this burden. Diabetes has highly demand on psychological and behavioral needs. Diabetes patients were required to take prolonged medication and modify several lifestyles. People must simultaneously adapt with blood sugar monitoring, physical activity, dietary adjustment, and medication adherence.

The context of religious may influence diabetes people in taking part in caring process (3). Religiousness role has potential benefit and guidance in assisting daily activity practice appropriately according to the religious way. Pray and religious organization

involvement were found to be significantly associated with smoking and drinking alcohol avoidance as well as physical activity engagement (4). Religious activity engagement also provide support in strengthening them in practicing diabetes care (5). In other hand, Ilkilic et al. (2017) reported that reduced medication compliance during Ramadan fasting as well as religious might be seen as barrier that produces medical distrust (5,6). These raise the questions whether the religiousness is a barrier or facilitator in practicing diabetes care behavior.

Since there are a lot of religion identities in worldwide including Islam, Christian, Catholic, Buddhist and others, the role of religiousness may have diverse definition among various religion especially in assisting healthy behavior practices. The term "religiousness" and "spirituality" are high correlated with religiosity and often confusing because people may define both of them in similar or different way. It is a great challenge to review how diabetes people see and define the role of religiousness and explore its' concept which influence diabetes care behavior.

Concept analysis assist to provide precise operational definition and understanding of underlying attributes with a concept, as well as to screen ambiguous concepts with a theory. Eight steps according to Walker and Avant's concept analysis process are conducted: (a) select a concept, (b) decide analysis purposes, (c) identify all uses of the concept, (d) determine attribute definition, (e) develop a model case, (f) determine antecedents, (g) determine consequences, and (h) identify empirical referents definition (7).

OBJECTIVE

To explore the meaning of religiousness on diabetes management among type 2 diabetes patients through selecting a concept, determining the analysis purpose, identifying a model case, investigating attributes, antecedents, and consequences, as well as defining empirical referents.

METHOD

Search strategy

We used PubMed, Google Scholar, ScienceDirect and CINAHL to find the relevant articles related to the religiousness in the type 2 diabetes care management. The search strategy used in this review included "religiousness", "diabetes care management", and "type 2 diabetes".

We included the relevance articles in the initial articles according to a literature review procedure. For initial strategies, "religiousness", "diabetes care management", and "type 2 diabetes" were the main search terms, and these terms needed to be observed either in the abstract or in the title of this study

Eligibility criteria

To describe religiousness in the type 2 diabetes care management, we included articles which met the inclusion criteria: last 10 year studies either in quantitative or qualitative studies that explore the dimension of religiousness in managing type 2 diabetes

Synthesis of results

Results of this review are explained narratively. The descriptions of results include the following: 1) religiousness definition; 2) defining attributes of religiousness associated with

type 2 diabetes care management; 3) model case on applying religiousness in type 2 diabetes care management, antecedents, consequences, and empirical referents

RESULTS

Defining Religiousness

Religiousness is defined as the affiliation (e.g. beliefs and practices in God commandments in term of health behaviour), beliefs and values (e.g. belief in abstract things such as life after dead), private religious participation (e.g. prayer, meditation, fasting, bible study), public religious participation (e.g. worship participation in social religious event such as church, mosque, temple), intrinsic motivation, extrinsic motivation, religious well-being (e.g. perceived peach, strength, and comfort), and religious coping (e.g. the way to cope with the physical, social and psychological stressor) (8)

Defining attributes

Attributes are defined as characteristics that appear repeatedly with reference to the concept. These defining attributes assist the researcher in differentiating similar concept definitions. Defined attributes were as follows: (a) religious belief, (b) religious practice, (c) religious support, (d) religious coping.

- Religious belief

Religious belief can be defined as the belief system foundation that may affect people's worldview and the way they live (9). The belief can be towards abstract event such as life after dead, God's power and what is happening as God's plan or will (5,8,10). In the context of diabetes, religious belief offered them the information of their health and well-being in daily lives (5,11) that benefit them to manage their diabetes such as healthy diet behavior (12). In addition, their religious healing belief does not affect their adherence on suggested regimen. Orthodox Christianity people integrating their healing belief such as praying and taking holy water and their suggested regimen schedule (13). Moreover, maintaining Ramadan fasting as Muslim beliefs benefits them with diabetes to get better health while trying to adhere on their diabetes medication (14)

- Religious practice

Religious practice can be defined as private and public religious practice that reflect people's act to perform God's commandment in order to required worship and also healthy lifestyle guidance (8,15–17). The private religious practices are including praying, doing meditation, fasting, reading Quran or other religious literatures, and following healthy lifestyle guidance such as abstaining from alcohol drink content, smoking, maintaining moderate eating, performing regular physical activity to reduce weight (15–17). The public religious practices could be attending public religious ceremonies or public worship in Mosque, Church or Temple (15–17). In the diabetes care context, by following religious practice in daily lives, it promotes diabetes people to perform diabetes care management such as taking medication, maintaining healthy diet, engaging physical activity, abstaining smoking, performing self-blood glucose monitor and foot care (5,13,14,17–20).

- Religious Support

Religious support is defined as support that is derived from community shared belief activity (8,15,16,21). By attending religious activity regularly, people with diabetes got reminder in order to manage their diabetes (18). They shared their diabetes care experience with friends in religious and got the diabetes care suggestion and encouragement (18). Thus

their received and provided support assist them to engage in healthy diet behavior, foot care, smoking prevention, and self-blood glucose monitor (12,17)

- Religious coping

Religious coping is defined as the way people put religiousness as coping source to face their own problem (8). In the diabetes care context, diabetes people seek help from their religion to give them hope and strength to cope their disease problem (18,22). They believed that God always helps them and never gives more than they could face which lead to reduce their worries and strengthen them to adhere on diabetes care management such as taking medication, adjusting diet habit, practicing physical activity, and performing self-blood glucose monitor (18,20,22).

Model case

Walker and Avant described a model case that demonstrates "all defining attributes of the concept." The example case is provided as follows:

A 55 years old woman with diagnosed of type 2 diabetes. When she was diagnosed 5 years ago, the glycated hemoglobin (HbA1c) examination result was 8.5% which was indicated as poor glycemic control. She admitted that she had poor lifestyle such as low physical activity and overeating especially for the high fat and sugar content food. Once she got diagnosed, she was suggested to engage in physical activity to lower her body weight, however she was not interested to follow it. She got excessive sweating and dizzy when she tried to walk for 30 minutes. She did not take any suggested medication when she felt no expected result. She terrified when she attempted to perform self-blood glucose monitor due to the worse result. She thought that by doing the self-glucose monitor did not give any fruitful assistance to control her diabetes control. Her doctor required her to follow the multiple diabetes self-care care management, including taking suggested diabetes medication, to lowering her body weight, to engage in physical activity, to perform self-blood glucose monitor and also to attend medical check-up monthly. However, these recommended diabetes self-care management were difficult for her to be engaged regularly even though she knew these will help her to control her blood glucose level. She faced the barriers that interfered in following these tasks include low controllability, lack of self-efficacy, perceived no support, psychological problem, and poor knowledge related to diabetes care. To assist her to maintain the suggested diabetes self-care management, she tried to make a self-reflection. She remembered that everything on her life was planned by God. She believed that there is always problem solving for her problem and obstacle including for her disease. She started gaining a positive coping by believing God's plan. She believed what she suffered for was just what she had done. Her poor behavior did not reflect to what God's commandment. To solve her problem, she followed the healthy moderate eating and decreased high fat food as well as sweet food. She started adjusting her eating and performing self-blood glucose monitor. She took diabetes pills as doctors' suggestion. She prayed, did meditation, and read religious literature to calm her down. To gain support, she attended to religious ceremony in the Church. She shared her disease experience to the other attendances. The priest and the attendance offered her support to continue the healthy behavior as their religion told them. The church also facilitated the group support to increase her physical activity in order to lowering body weight. According to her believing in God's plan, practicing religious duty, gaining positive coping and received religious support, these strategies could encourage her to adhere in diabetes care management. The expected glycemic control level and good psychological status were achieved.

This model case reflects and provides addition information that the religiousness attributes was success to achieve the type 2 diabetes care management such as healthy diet behavior, self-blood glucose monitor, exercise, medication adherence, and psychological problem management. Finally, the religiousness in type 2 diabetes care management could lead to better glycemic control and psychological status

Antecendents

Walker and Avant defined antecedents as events that must occur prior to the emerging concept. The factors considered as antecedents for implementing religiousness for promoting type 2 diabetes care management include socioeconomic factors (9,12,19). Ethnic and religion was associated with spiritual beliefs that affect to glycemic control (9). Our review also suggested to manage the other socioeconomic factors such as age, gender, education level, income and employment that might influence religiousness and lead to lack of diabetes knowledge, poor dietary habit, low physical activity and lack of medication adherence and blood sugar testing (12,19).

Table. 1. Religiousness items, components, and skills

Religiousness attributes	**Items/components/ skills**
Religious beliefs	Belief towards to God's existence, His power, willing, plan and commandment, and belief in abstract event such as life after dead.
Religious practices	Private religious practice (e.g. pray, fasting, read holy book, meditation etc.), Public religious practice (e.g. worship in Mosque, Church, Temple or other public worship place; attend to religious ceremonies etc.), Suggested religious daily lifestyle (e.g. moderate eating, physical activity, prevent smoking or alcohol etc.)
Religious support	Perceived support from religious community shared belief or support while attending religious public activity.
Religious coping	Put the religiousness as coping source and effort to face the problem or psychological stress.

Table 2. Dimensions of religiousness

Study	**Dimension of Religiousness**
How at al. (23)	- Spiritual and religious beliefs
Watkins et al. (12)	- Beliefs and practice - Social support
Heidari et al.(17)	- Private religious practice - Public religious practice
Walker et al. (19)	- Religious and spiritual coping

Consequences

Walker and Avant defined consequences as events that occur as a result of the emerging concept. Consequences of religiousness have been described by research related to type 2 diabetes care management. Religiousness has a significantly associated with better glycemic control (9). In addition, the religiousness was reported to be the source of motivation, hope, strength, and coping that may lead to better psychological well-being

(11,18,20,22). Furthermore, the religiousness could promote better type 2 diabetes care management

Empirical referents

Empirical referents are defined as classes or categories of actual phenomena that, by their existence or presence, demonstrate the emergence of a concept. Some instruments are identified for measuring religiousness within the area chronic disease, including Systems of Belief Inventory (SBI-15R) (21), Beliefs and Values (BV) Scale (24), Private and Public Religious Practices (PPRP) (15), and Diabetes Fatalism Scale-12 (DFS-12) (25).

Yashika et al. (12) used a 15 items of self-reported questionnaire that measuring the religiousness dimension to investigate the beliefs and practices and the religious social support (21). SBI-15R is consisted of four statement choices for each subscales and the individual scores range from 0 (best spiritual beliefs, religious practices and religious social support) to 3 (worst spiritual beliefs, religious practices and religious social support (21). The instrument has high validity and reliability (Cronbach's $\alpha = 0.93$) (21).

King et al. (24) created the BV to investigate the intrinsic religious motivation that reflects spiritual and religious beliefs. BV has 20 items with five statement choices for each subscale and participants scores range from 4 (highest spiritual and religious beliefs) to 0 (poorest spiritual and religious beliefs). BV is valid and reliable instrument (Cronbach's $\alpha = 0.94$) (24).

PPRP is used to assessed the private religious practices such as pray privately, read religious holy book, or watch religious program on television or radio and public religious practices such as attend to mosque or other religious places or ceremonies, religious support and religiosity. It has 13 items and the higher score indicates that higher religious practice conducted. The PPRP has good reliability and validity score (Cronbach's $\alpha = 0.81$) (15,16).

DFS-12 was used by Walker et al. (19) to measure diabetes fatalism. DFS-12 has 3 subscales which are emotional distress (subscale I), religious and spiritual coping (subscale II), and self-efficacy (subscale III). DFS-12 has 12 items that consist of 4-response options with range within 6 (strongly agree) to 0 (strongly disagree). The score was reversed for religious and spiritual coping and self-efficacy subscale. The lower score indicates the higher religious and spiritual coping obtained. DFS-12 analysis was revealed a good Cronbach- $\alpha = 0.804$. In addition, the validity and reliability on religious and spiritual coping subscale was good (Cronbach- $\alpha = 0.774$) (25).

We revealed the differences of religiousness dimensions are measured and the settings to the scale are conducted. There is no instrument found that measured all dimensions of religiousness, however, each attributes have been assessed in this concept analysis. Thus, the instrument might be need to modify to measure all the dimension of religiousness on the future study.

Table 3. Instrument measurement for religiousness

Instrument	Study	Item dimensions	Instrument characteristics
BV	How et al. (23)	Spiritual and religious beliefs	5-point Likert scale: (0) strongly disagree. (1) disagree, (2) neither agree nor disagree, (3) agree, (4) strongly agree
SBI	Watkins et al. (12)	- Beliefs and practice - Social support	4-point Likert scale: (0) strongly disagree. (1) Somewhat disagree, (2) Somewhat agree, (3) strongly agree and a 4-point frequency scale: (0) none of

			the time, (1) A little bit of the time, (2) A good bit of time, (3) all of the time.
PPRP	Heidari et al. (17)	- Private religious practice - Public religious practice	**The private religious practice:** - First three items had 8-points Likert scale: (7) several times a day, (6) Once a day, (5) A few times a week, (4) Once a week, (3) A few times a month, (2) Once a month, (0) never. - The fourth item had 5-point Likert scale: (4) at all meals, (3) Once a day, (2) At least once a week, (1) Only on special occasions, (0) never. **Public Religious Practice:** - Mosque and religious ceremonies attendance had 8-point Likert scale: (7) Several times a week, (6) every week, (5) Nearly every week, (4) 2-3 times a month, (3) About once a month, (2) Several times a year, (1) About once or twice a year, (0) Never - Religious support provided and received had 4-point Likert scale: (3) very often, (2) Fairly often, (1) Once in a while, (0) Never. - Religiosity had 4-point Likert scale: (3) A great deal, (2) Quite a bit, (1) Somewhat, (0) Not at all.
DFS-12	Walker et al. (19)	- Religious and spirituality coping	6-point Likert scale: (6) strongly agree, (5) moderately agree; (4) agree; (3) disagree; (2) moderately disagree; (1) strongly disagree. Scores on the religious and coping was reversed score.

Note: SBI-15R: Systems of Belief Inventory, BV: Beliefs and Values Scale, PPRP: Private and Public Religious Practices, DFS-12: Diabetes Fatalism Scale-12

DISCUSSION

The main findings contribute in clarifying the definition of attributes, antecedents, consequences, and empirical referents to religiousness in type 2 diabetes care management. The concept of religiousness is developed of several dimensions, including religious belief, religious practice, religious support, and religious coping. These attributes are associated with socioeconomic status to mention as antecedents, including age, gender, race or ethnic,

religion, education level, income and employment. The outcome of better understanding of religiousness is to promote type 2 diabetes care management that lead to better glycemic control and psychological well-being. Hence, exploring the role of religiousness in diabetes care management suggest health care provider to take religiousness into account in delivering type 2 diabetes care management and consider the antecedent as inhibitor or facilitator in integrating religiousness during implementation.

CONCLUSION

Health care provider might consider the antecedent as or inhibitor factors to impede the expected outcome. Further research might need to take religiousness role into account to type 2 diabetes care management intervention.

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