EDUCATIONAL VIDEO VS PAMPHLET: INTERVENTIONS TO IMPROVE KNOWLEDGE AND ATTITUDE TOWARD VITILIGO

BY

MISS CHULAPHAN RACHAWONG

A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF SCIENCE (DERMATOLOGY)

GRADUATED STUDIES

CHULABHORN INTERNATIONAL COLLEGE OF MEDICINE

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was approved as partial fulfillment of the requirements for the degree of Doctor of Master of Science (Dermatology)

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ABSTRACT

Vitiligo is a visible condition that is more noticeable in darker-skinned people. Various misconceptions and negative attitudes about vitiligo among the public are prevalent. Educating the public about vitiligo could ultimately lead to better psychosocial well-being of vitiligo patients. The purpose of this study was to evaluate the efficacy of a brief video education comparing with pamphlet education about vitiligo to assess for improved knowledge and attitude of public. An interventional study design was created using a survey based on the simulation video of the real situation. All participants were asked to fill in the attitude and knowledge questionnaires after watching a brief 20-second video which portrayed a customer being served at a restaurant by a waitress with visible white patches on both hands. Then, participants were randomized to either receive the experimental (educational vitiligo video) or control (educational vitiligo pamphlet) group of study. After watching the video or reading pamphlet educational, participants in both group were asked to complete the questionnaire immediately. Lastly, the post intervention, at day 7 was performed in both groups.

Total 101 subjects completed the questionnaires. The mean knowledge score was 7.24 ± 3.38 (minimum = 0, maximum = 15). Less than one-fourth of the participants recognized this condition from video as vitiligo. Also, fewer than two-third of all questions in this study had percentage of correct answer except the only question which more than 70%

of the participants knew was that it is not lethal. In attitude perceptions, the mean attitude score of this studied sample was 28.02 ± 4.45 (minimum =1, maximum = 40). The lowest attitude score was in starting to date a vitiligo victim while the highest attitude score was found when individuals already married with vitiligo patients.

The result of comparison between video group and pamphlet group revealed that in knowledge part, the mean difference from baseline to immediately and immediately to Day 7 after intervention had not showed statistically difference (p=0.29, p=0.17 respectively). These finding suggest that both video and pamphlet could improve the knowledge at immediately and at Day 7 equally.

In attitude part, the mean difference from baseline to post intervention, immediately of video and pamphlet did not show statistically difference (p= 0. 49) . Nevertheless, from post intervention, immediately to Day 7, it revealed an increasing of the mean difference in video group was significantly more than a decreasing of the mean difference in pamphlet group (p=0.015). These finding suggest that video education were more useful than pamphlet in term of leading to better attitude in long term towards vitiligo.

Moreover, the relationship between knowledge and attitude revealed that sufficient knowledge tended to have more positive attitudes towards vitiligo. This association was statistically significant (p<0.004).

In conclusion, video and pamphlet vitiligo education are both effective and beneficial to encourage improving knowledge. However, video is superior to pamphlet in the long term for changing to better attitude towards vitiligo. Education will clarify some false perceptions and bring better social integration and adaptation for vitiligo patients.

Keywords: Vitiligo, Knowledge, Attitude, Misconceptions, Questionnaire

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Miss Chulaphan Rachawong

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LIST OF ABBREVIATIONS

Symbols/Abbreviations	Terms
CSc	Corticosteroids
HCW	Health care workers
KP	Koebner's phenomenon
MEL	Monochromatic excimer light
NBUVB	Non-healthcare workers
NHCW	Narrowband UVB
NSV	Non-segmental vitiligo
PUVA	UVA and Psoralens
QoL	Quality of Life
SV	Segmental vitiligo
TCs	Topical corticosteroids
TCIs	Topical calcineurin inhibitors

CHAPTER 1
INTRODUCTION

1.1 Background and rationale

Vitiligo is the common skin disorder, in which white patches or macules appear on the skin. The cause is still unknown. However, it is proposed that it might be the result from an autoimmune process directed against the melanocytes. In vitiligo, only the color of the skin is affected, however the texture and skin qualities remain normal. Nevertheless, it often causes cosmetic disfigurement in patients and may significantly decrease their quality of life (QoL), especially in dark skin color. The vitiligo patients mostly have to face psychological impact and social discrimination. Common people misconception and negative attitude are due to lack of knowledge. This study would evaluate the impact of social intervention, VDO vitiligo education, to general population in improvement from baseline in both knowledge and attitude to vitiligo patient. Understanding the public's perspective could help in finding the solution for the negative feeling towards vitiligo. Moreover, this is one of the first assessment studies based on knowledge and attitude of public population. This study highlights the impact of clinical teaching which not only imparts knowledge but also eliminates misconceptions.

1.2 Research Question

Vitiligo is a skin disease that is more obviously seen in darker-skinned people. Beliefs about illness have been associated with psychosocial adjustment. There are some evidences that such beliefs may be influenced by cultural factors. Many misconceptions and negative perception about vitiligo in a general population are prevalent. Educating the public about vitiligo could ultimately lead to better psychosocial well-being of vitiligo patients. This study would assess the effect of social intervention, VDO vitiligo education, by pretest and posttest to general population. Also, the prevalent knowledge and attitude in general public towards vitiligo patients would be revealed. The

information about the public's perspective, attitudes, knowledge and local misconceptions of general population would offer explanations for the negative feelings that vitiligo patients suffer. Understanding these answers might be promising to help in finding a solution for the problems. Moreover, among of misconceptions and negative attitudes from public, educating the public about vitiligo would be important steps to bring the better psychological well-being to vitiligo patients.

1.3 Specific Objective

Primary objectives: To examine the effectiveness of social interventions, in terms of VDO education, for general population in both knowledge and attitude to vitiligo patient.

Secondary objectives: To investigate the baseline knowledge and attitude to vitiligo

1.4 Hypothesis

Social intervention by VDO education may improve general public in better understanding of vitiligo disease.

1.5 Keywords

Vitiligo
Knowledge
Attitude
Misconceptions
Questionnaire

1.6 Ethical consideration

All patients were informed about the objectives, methods and expected benefits of this study. All patients have the right to withdraw from the study. Confidentiality

of the subject's data was primarily concerned. Approval of this study was obtained from Thammasat University, Ethical review committee.

1.7 Limitation

The limitations of this study are the small sample size and it the potential for the introduction of biases associated with self-reporting and under or over-reporting of information.

1.8 Expected benefits and application

By recognizing popular misconceptions of vitiligo, we can improve the QOL of vitiligo patients and their families. To the best of our knowledge, this is the first study in Thailand to address this topic by using a brief situational video of real life vitiligo patient and analyze the attitude and knowledge toward vitiligo patient.

1.9 Obstacles and strategies to solve the problems

The most of the subjects lost to follow up. The problem could be solved by the improvement of doctor-participant relationships. For the data collection, all questionnaires were labeled the participant's code and date of collection in order to prevent the switching or loss of subject's data. The questionnaires were kept orderly in the shelf with lock before the data analysis process.

Table 1.1 Administration and time schedule

	2016											2017				
	FEB	**MAR**	**APR**	**MAY**	**JUN**	**JUL**	**AUG**	**SEP**	**OCT**	**NOV**	**DEC**	**JAN**	**FEB**	**MAR**	**APR**	**MAY**
Research Proposal																
Research Ethic																
Experiment																
Data Analysis																
Conclusion &Report																
Publication																

CHAPTER 2
REVIEW OF LITERATURE

Vitiligo is an acquired disease characterized due to a progressive loss of functional melanocytes in the skin that causes circumscribed depigmented and asymptomatic macules (Figure 2.1) (1) Celsus is the first person who used the term vitiligo which derived from latin (2). Later Brocq and Kaposi described the lesion of vitiligo and demonstrated that there were no pigment granules in the basal layer cells of affected skin (3).

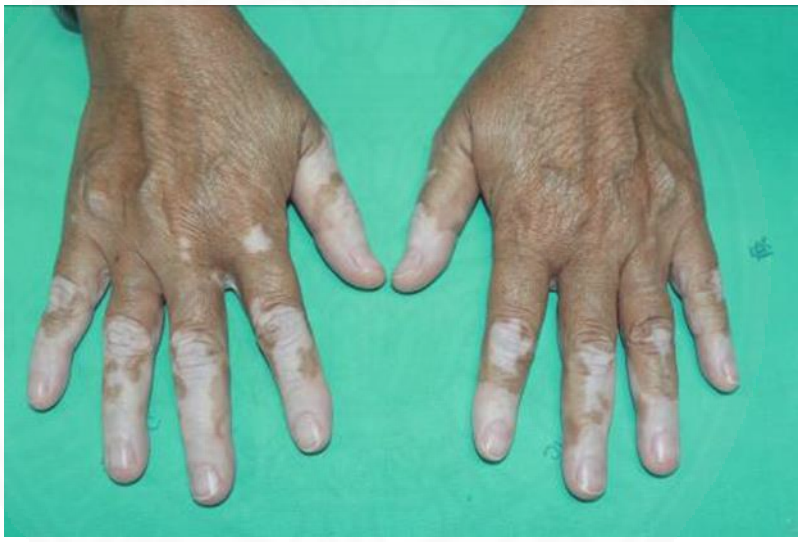

Figure 2.1 well-circumscribed depigmented macules of vitiligo

2.1 Epidemiology

The prevalence of vitiligo is reasonably consistent among different population and ranges from 0.1 to 8%, particularly in India (4). The highest incidence cited of 8.8% in the world is located in India. However, in deep analysis found that the incidence is far too high because the data was collected in one skin institute in Delhi (5). Nevertheless, after analysis of a number of studies from geographically enclosed areas and worldwide population, it was concluded that the worldwide prevalence of childhood and also adult vitiligo is not different which ranges between 0.4 and 2% (6). The prevalence affected

men and women equally, however females usually start the disease earlier than males. It also can occur any age, nevertheless 70%-80% of vitiligo develop before the age of 30 (7).

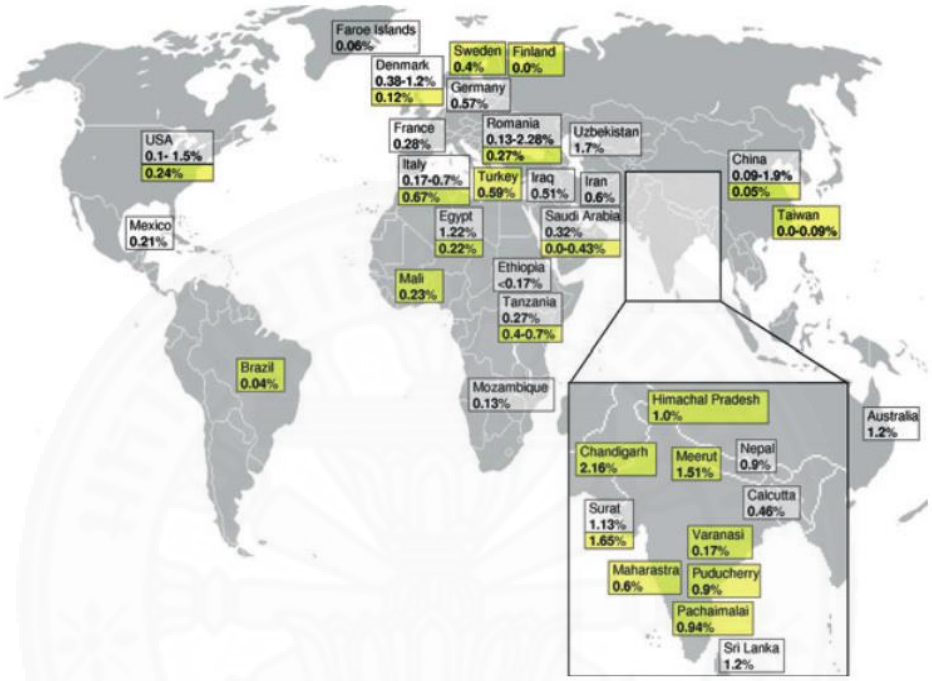

Figure 2.2 World prevalence rates of vitiligo. White boxes: general population; yellow boxes: children/adolescents (7)

Vitiligo is an autoimmune disease which may be associated with other autoimmune disease. It was reported in adults that vitiligo associated autoimmune diseases (VAAD), most commonly hyperthyroidism/hypothyroidism, rheumatoid arthritis (RA), pernicious anemia (PA), type 2 diabetes mellitus (DM), and alopecia areata. Those, except alopecia areata were associated with older age and enlarge vitiligo extent (BSA, number of body parts, and/or bilaterally). In the same way to children, there were associations of autoimmune disease, most commonly hyperthyroidism/hypothyroidism, RA, psoriasis, and alopecia areata. However no associations of demographics, vitiligo extent, duration or distribution and VAAD (8). The lesion can occur any time from presently after birth to late adult (9). The onset of disease often attributes to the specific circumstances (e.g.

physical injury, sunburn, emotional distress, illness or pregnancy), however these factors are still no proof to be the cause or precipitation of the disease. According to the study, Barisic-Drusko et al. (10) demonstrated that the onset of vitiligo was mostly connected with emotional distress.

2.2 Pathogenesis

Vitiligo is a multifactorial disease associated with genetic and nongenetic factors, with a complex pathogenesis. Although the pathogenesis of vitiligo still remains unclear, the autoimmune hypothesis is the significantly prominent hypothesis. It is generally accepted that functional melanocytes disappearing from the epidermis gives rise to depigmentation which proved by loss of immunohistochemically recognizable melanocytes

2.2.1 Autoimmune theory

As the previous study, there were many evidence that vitiligo is associated with autoimmune disease (11-19). According to the large study from Alkhateeb, A. and *et al.* (12) surveyed 2624 vitiligo from North America and UK found that the most frequent vitiligo- associated disorder was autoimmune thyroid disease, especially Hashimoto thyroiditis and pernicious anemia also was quite frequent. Systemic lupus erythematosus, Addison's disease and inflammatory bowel disease were all rare diseases, but still could occurr significantly. Also, vitiligo has been related with other autoimmune diseases which are called autoimmune polyglandular syndrome (APS), the heterogeneous autoimmune related with multiple endocrine- gland insufficiency. Most common type which vitiligo can be present is APS-3 which has association with autoimmune thyroiditis and another autoimmune disease (20).

2.2.2 Adhesion defect theory

According to vitiligo lesion mostly occurs after minor traumas such as wounds, repeated pressure or friction. Gauthier et al. revealed that both intrinsic path mechanisms which is autoimmune and extrinsic pathomechanisms (mechanical trauma) may be essential in inducing loss of chronic epidermal melanocyte. This theory is "Melanocytorrhagy theory". Gauthier et al. performed the light friction on nonlesional skin of NSV patients for 4 min. The observation of sections after friction on vitiligo

skin at 4 and 24 h after friction found several detachment melanocytes in the stratum spinosum, granular layer, and within and outside the stratum corneum. It could be concluded that transepidermal elimination of melanocytes in vitiligo could be a possible mechanism of chronic loss of melanocytes which are weakly anchored and trauma can induce upward migratory loss (21). Furthermore, it has been shown from the study of Le Poole et. al. revealed no differences in all levels of expression of integrins between control, non-lesional, perilesional or lesional skin. However, it was obviously seen that there were an increasing amounts of tenascin in vitiligo skin, an extracellular matrix molecule inhibits adhesion of melanocytes to fibronectin. This could be explained the loss of melanocytes (22).

2.2.3 Biochemical theory

From the study of Khan R. et al. show the relation of oxidative stress in the pathogenesis of vitiligo. They found that extremely higher levels of MDA and significantly lower levels of SOD, GPx, total antioxidant, vitamins C and E activity in vitiligo patients compared with the control group. Therefore oxidative stress might be the main role in pathogenesis of vitiligo (23).

To date there is still unclear why abnormal low levels of catalase enzyme is presented both lesional and nonlesional vitiligo patients, which is related with H2O2 over production in entire epidermis of vitiligo. Higher level of H2O2 compared with healthy control can demonstrated in vivo by utilizing Fourier-Transform Raman spectroscopy (24). From the study of Casp C. et al, shows that the T/C single nucleotide polymorphism (SNP) in exon 9 of the catalase gene (CAT), which is detected with the restriction endonuclease BstX I, may be related between the CAT gene and vitiligo susceptibility. The mutations of the CAT gene are usually found among vitiligo patients. Low level of catalase enzyme leads to excess hydrogen peroxide (H2O2). Therefore, in some vitiligo patients may have a susceptible gene which supported the epidermal oxidative stress theory for pathogenesis of vitiligo (25).

2.3 Classification

During the 2011 International Pigment Cell Conference (IPCC), the Vitiligo European Taskforce (VETF) had a consensus conference on issues of classification and

nomenclature of vitiligo. A consensus emerged that vitiligo is divided into two groups, segmental vitiligo(SV) and non-segmental vitiligo(NSV) (26). The different subtypes of vitiligo are summarized in Table 2.1 (27).

2.3.1 Segmental vitiligo (SV)

It reveals associated with segmental distribution of depigmented lesions, typically associated with rapid onset and with leukotrichia. SV has earlier age of onset than NSV and also has a rapidly progressive within the segment during 6-24 months but limited course, further extension is rare (26, 28). Moreover, melanocytes of hair follicles is up to 50% of SV patients demonstrating poliosis in the lesion. However, there is no conclusion in the mechanism of lesion distribution in SV. Melanocyte autografts mostly yield great results, and also with stable repigmentation (29).

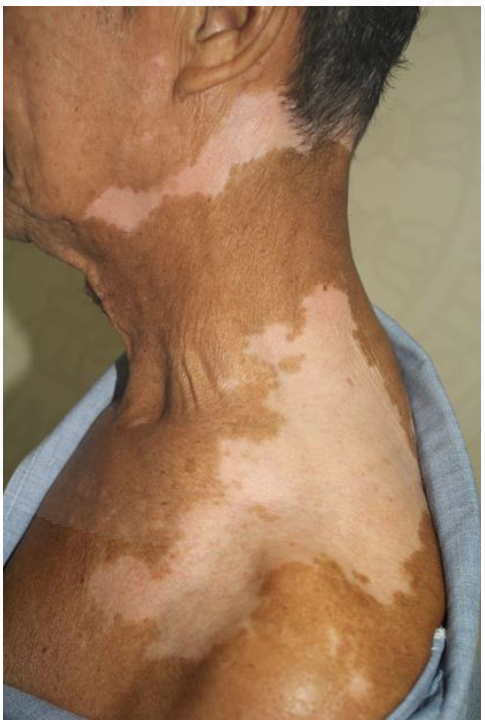

Figure 2.3 Segmental vitiligo

2.3.2 Non-segmental vitiligo (NSV)

It usually progresses over time in distribution and pattern, it includes several variants such as generalized vitiligo, acrofacial vitiligo and universal vitiligo. The

term ‘vitiligo’ is the suggested umbrella term for all non-segmental forms of vitiligo. As a transition, vitiligo/NSV can be used. NSV also includes three major subgroups, generalized vitiligo, acrofacial vitiligo, and universal vitiligo. Mixed vitiligo which combines SV and NSV, SV followed by NSV with a delay of at least 6 month and the dermatomal segment affected by at least 20% of SV is a subgroup of NSV.

Table 2.1 The classification of vitiligo are summarized in Adapted from Lannella et al. (27)

Nomenclature	Subset	Notes
Non-segmental vitiligo	Acrofacial	Usually limited to face, head, hands, and feet
	Generalized	Symmetrical macules, mainly hands, fingers, face, and trauma-exposed areas
	Mucosal (at least two sites involved)	Involvement of the oral and/or genital mucosae with other sites of skin involvement
	Universal	Depigmentation affects 80%–90% of body surface.
	Mixed vitiligo	Occurrence of SV and NSV SV followed by NSV with a delay of at least 6 months. At least 20% of a dermatomal segment affected by SV.
Segmental vitiligo	Unisegmental	One or more depigmented macules distributed on one side of the body
	Bisegmental	Two segmental lesions distributed either unilaterally or bilaterally
	Plurisegmental	Multiple segmental lesions distributed either unilaterally or bi-laterally
Unclassified vitiligo	Focal vitiligo	Isolated macules that do not have a segmental distribution. No evolution into NSV after at least 2 years
	Mucosal vitiligo (only one site involved)	Exclusive involvement of the oral or genital mucosae

2.4 Clinical Features

Skin Features

Vitiligo is typically, discrete, white macules or patches with sharp borders are surrounded by normal skin. It is usually asymptomatic, however pruritus has been reported. The lesions is slow progression and usually occurs at hyperpigmented sites, including the face (periorificial), nipples, axillae, the dorsal-surface hands, umbilicus, sacrum and inguinal/anogenital regions.

In NSV, the affected areas frequently occurs on areas that associated with repeated rubbing during daily activities and areas exposed to a chronic trauma such as the elbows, digits, knees, and flexor wrists which it can be called Koebner's phenomenon (KP). It is named after a German dermatologist, Heinrich Koebner (1838–1904), who observed in psoriasis patient to see the occurrence of new lesions at the trauma site (30). The incidence of KP ranges from 21-62% (31, 32). Nevertheless, the pathophysiology and clinical consequences of KP in vitiligo remains unclear. A number of theory are deficiency of melanocyte growth factors, immunologic, and increased oxidative stress ultimately leading to depigmentation can play a role. According to the study, Gauthier et al.(21) explained the mechanism due to a defective melanocyte adhesion led to a mechanical detachment of melanocytes followed by transepidermal elimination.

Koebner's phenomenon (KP) vitiligo patient is different from post inflammatory hypopigmentation which leads to a partial melanocyte loss and decreases melanosome transfer and production. Wood's light inspection can show a hypomelanotic skin unlike amelanotic skin in vitiligo because in post inflammatory hypopigmentation, melanocyte are not completely absent in the lesion. Also, it is a temporary loss of melanocyte so in the months, melanocyte could migrate from hair follicle leading repigmentation (21).

Vitiligo ponctue is confetti-like amelanotic macules which it occurs on normal or hyperpigmented skin (Figure 2.4) (7).

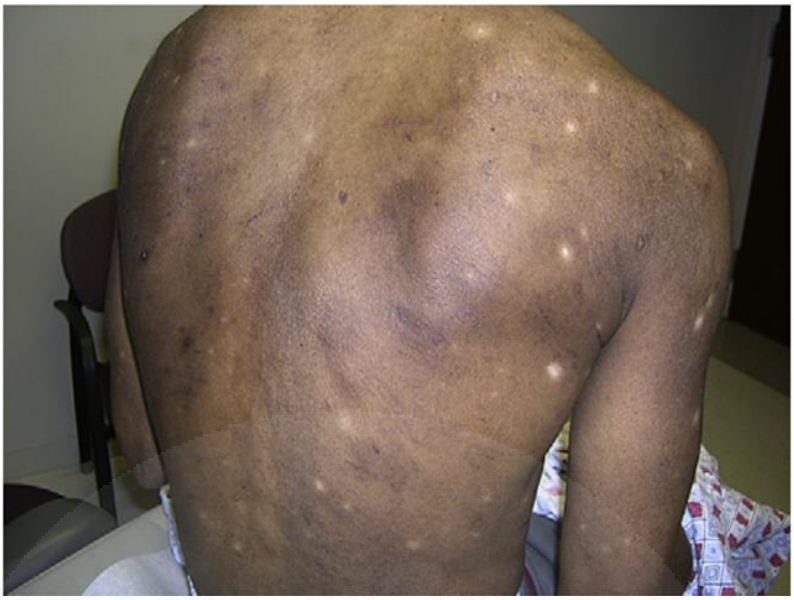

Figure 2.4 Vitiligo ponctue(7)

Trichrome vitiligo is located between normal and depigmented skin which has a tan zone.

Quadrichrome vitiligo, more common in darker skin, is like trichrome vitiligo but also has additional marginal or perifollicular hyperpigmentation.

Blue vitiligo has a blue grey appearance due to the presence of many dermal melanophages and absence of epidermal melanocytes (33).

Tissue presents well differentiated melanocytes such as inner ear, eye, meninges and skin. These melanocytes support retinoid production and protect UV rays. There were a few literature revealed the association of ocular disease and vitiligo. Vogt-Koyanagi-Harada syndrome (VKHS) is a rare autoimmune disease characterized by bilateral uveitis associated with multisystem involvement such as auditory, neurological and cutaneous manifestations. Vitiligo is one of the clinical feature in cutaneous involvement (34).

From the study of Biswas G. et al. (35) found that 100 vitiligo patients have the ocular disorders associated with vitiligo mostly 23% hypopigmented spots on the iris, 18% pigmentation on anterior chamber, 11% retinal pigment epithelium hypopigmentation, 9% retinal pigment epithelium hypopigmentation and 5% uveitis. Therefore ocular diseases are associated with vitiligo, they should be assessed.

2.5 Diagnosis and differential diagnosis

The diagnosis of vitiligo is usually made by clinical and by using the Wood's lamp which is the photography, and reflectance confocal microscopy. It may help to diagnosis and also monitoring the progress of the lesions. The British Association of Dermatologists proposed the recommendation and diagnosis for vitiligo patient Table.2.2 (36).

Table 2.2 British Association of Dermatologists recommendations

British Association of Dermatologists recommendations
▪ straightforward when presentation is classical ▪ When presentation is atypical, it should refer for expert assessment by a dermatologist ▪ A blood test to check thyroid function should be considered to adult vitiligo ▪ Could be use a Wood's lamp in evaluation extent and activity of vitiligo, and monitoring response to therapy ▪ Should be considered the response of treatment in context of the natural history, recognizing that spontaneous repigmentation may occur but is uncommon ▪ Assess the psychological and quality of life effects of vitiligo on patients ▪ Patient's improvement in quality of life should be the most significant outcome measure

Source: Adapted from Gawkrodger et al. (36).

The differential diagnosis of vitiligo is broad and it includes some acquired hypopigmented disorders. Common disorders that can be present like vitiligo such as pityriasis versicolor, pityriasis alba, lichen sclerosus et atrophicus, leprosy, morphea and sarcoidosis Table 2.3

Table 2.3 Differential diagnosis in vitiligo

Chemically-induced leukoderma (often occupational)
Phenols and other derivatives
Infections
Leishmaniasis
Leprosy
Onchocerciasis
Tinea versicolor
Treponematoses (pinta and syphilis)
Genetic syndromes
Hypomelanosis of Ito
Piebaldism
Tuberous sclerosis
Vogt-Koyanagi-Harada syndrome
Waardenburg syndrome
Postinflammatory hypopigmentation
Atopic dermatitis/allergic contact dermatitis
Nummular dermatitis
Phototherapy- and radiotherapy-induced hypopigmentation
Pityriasis alba
Posttraumatic hypopigmentation (scar)
Psoriasis
Systemic lupus erythematosus
Topical or systemic drug-induced depigmentation
Neoplastic
Amelanotic melanoma
Halo nevus
Melanoma-associatedleukoderma
Mycosis fungoides

Table 2.3 Differential diagnosis in vitiligo (cont.)

Idiopathic Idiopathic guttate hypomelanosis Lichen sclerosus et atrophicus Lichen striatuselike leukoderma Melasma (caused by contrast between lighter and darker skin) Progressive (or acquired) macular hypomelanosis
Malformations Nevus anemicus Nevus depigmentosus/hypopigmentosus

However, history taking and good physical examination would help to right diagnosis. There are no tests to identify vitiligo, nevertheless a wood's lamp could be used for uncertain lesions.

CHAPTER 3
TREATMENT OF VITILIGO

Up until now, there is no effective treatment for vitiligo. The treatment is aimed to obtain skin repigmentation and stopped progression of disease. This topic reviews the currently available treatment for vitiligo. However, many patients are less responsive to the treatment especially on hands and feet. Therefore, they would suffer from the disease with the long life. The psychotherapy for coping with the disease should be added on as an adjunct therapy since the beginning of the disease.

3.1 Topical therapy

3.1.1 Corticosteroid

Topical corticosteroids (TCs) are still the first line therapy due to their efficacy, low cost and availability which uses as monotherapy or combined with light therapy. Moreover, it is effectively to obtain skin repigmentation and it decreases the disease progression (37). As the previous study, there were many evidence that vitiligo is associated with autoimmune disease which demonstrated many inflammatory cells including macrophages and T cells. Melanocyte destruction and autoantibody are reported. TCs has shown to decrease the destruction and induce melanocyte and melanin production in vitiligo lesion (38). Children seems to have the response rate higher than adults. Head and neck is the most effective response area (39). Kwinter et al. revealed from the retrospective study that children vitiligo treated with moderately to high potency topical corticosteroids found 64% (45 of 70) with repigmented lesions. However, cortisol levels were abnormal in 29% of patients (21 of 7) and two children given the diagnosis of steroid-induced adrenal suppression. Furthermore, children with head and/or neck affected areas compared with other body areas were 8.36 times more likely to have an abnormal cortisol level. In children with vitiligo may use topical moderate- to high-potency topical corticosteroids, while it could be associated with systemic absorption (40).

Up to the present times, with the comparative studies, TCs are the most effective topical treatment compared with other topical treatment. According to

the study of Westerhof W. et al found that using treatment combined with fluticasone propionate (FP) and UV-A is significantly effective in repigmentation than are FP and UV-A used alone, but very inter-individual differences occur. Combination treatment was three times more effective than either UV-A or FP treatment alone Therefore, a combination of FP and UV-A could be treated vitiligo for a long-term (41).

Most of papers proposed that upper mid-strength TCs had a higher efficacy. However, the side effects could be found such as atrophy, telangiectasia and striae. Due to it has been reported the side effects so they should not be used for longer than 2–4months to avoid percutaneous absorption with chronic adrenal insufficiency (42).

3.1.2 Calcineurin inhibitors

Calcineurin inhibitors include two topical immunosuppressants which is tacrolimus and pimecrolimus. Topical calcineurin inhibitors (TCIs) are immunosuppressive characteristics and help their immunosuppressive effects by inhibiting the activation of T lymphocytes which plays a significant role in inflammatory skin disorder. The TCIs are the compounds that bind to the intracellular protein. It inhibits the phosphorylase enzyme calcineurin, which prevents translocation of the nuclear factor of activated T cells (NFAT). The NFAT signaling pathway acts on T cells including IL-2, IL-3, IL-4, IL-10, interferon-gamma, and granulocyte-macrophage colony-stimulating factor. This in turn reduces proinflammatory cytokines associated with T-cell activation (43).

According to the study of Lepe V. et al revealed that efficacy of TCIs provided almost equivalent to slightly inferior repigmentation rate compared to topical corticosteroids. TCIs is considered to be safe for prolonged use because TCIs provide no side effect profile of corticosteroids (44).

In 2005, the FDA published a public health advisory based on a possible risk of malignancy (squamous cell carcinoma, basal cell carcinoma and T-cell lymphoma) with TCIs use. However, in the years since, the relationship between TCIs use and lymphoma risk or malignancy, particularly for pimecrolimus cream is still no definite. In addition the number of malignancies and lymphomas is very low and similar to the number expected in the general population (45).

Another therapeutic approach is to use light or laser therapy with TCIs in combination which could enhance the repigmentation. Nistico et al.(46) revealed that the combination treatment of 0.1% tacrolimus ointment plus 308-nm excimer laserMEL

and 308-nm MEL monotherapy was effective, safe, and well tolerated for the treatment of vitiligo. Furthermore, in a single-blinded, randomized, comparing 308-nm excimer laser therapy together with topical 1% pimecrolimus cream twice daily comparing with excimer laser alone evaluated after 30 weeks of treatment. The better outcome was found in the combination group significantly (47). Not only TCIs combined with laser therapy enhance the repigmentation rate, but also TCIs combined with light therapy. According to this study, the combination of NB-UVB and tacrolimus ointment (0.1%) reduced the size of vitiligo lesion significantly compared with NB-UVB treatment alone(48).

3.1.3 Vitamin D3 analogs

Calcipotriene is a topical vitamin D3 analog. There are many different mechanism. It inhibits keratinocyte proliferation. However, the immunomodulatory effects, enhancement of melanocyte development and also melanogenesis are attentive in vitiligo (49). Calcipotriene, as monotherapy is inferior to topical corticosteroids, but some studies of calcipotriene monotherapy in childhood show good response. According to the study of Gargoom A. found that eighteen children who applied calcipotriol twice daily as 50 microgram/gm, most of them (77.8%), showed improvement while four patients (22.2%) had no response. In response group, three patients (21.4%) showed complete resolution, four (28.6%) showed 50%-80% improvement and only three patients (21.4%) showed 30% to < 50% improvement.

Only one irritation side effect found in one patient. So calcipotriol is an effective treatment in vitiligo especially in children who can't use steroids and PUVA (50).

Although calcipotriene has inferior to topical corticosteroid in response and repigmentation rates, combined with topical corticosteroid increase repigmentation rates and stability of repigmentation compare with monotherapy (51). No benefit has been found in combination with phototherapy.

3.2 Systemic Therapy

Systemic CSs are not considered the first line therapy and there are only a few studies assessed about safety and efficacy. From the study of Alghamdi et al. (52) found that no change in their vitiligo lesions in all the patients received 25 mg of methotrexate for

6 months and assessed at 0, 1, 3, 6 and 9 months. However, the methotrexate therapy had no side effect and well tolerated.

According to the study of Banerjee K. et al proposed that low-dose oral prednisolone prednisolone (0.3 mg/kg body weight) is an effective method both in control of disease progression and repigmentation without any serious side-effects(53). Nevertheless, the further studies on systemic therapy are needed.

3.3 Phototherapy

Currently, there are three main types of phototherapy, namely narrowband UVB, phototherapy with UVA and psoralens (PUVA therapy) and monochromatic excimer light (MEL). NBUVB (311 nm) is now considered the most effective, safer and superior to phototherapy with UVA and psoralens (PUVA therapy). There was the minimal increase the risk of melanoma and other skin cancer in PUVA, but not found in NB-UVB(54).

3.3.1 Efficacy of phototherapy

3.3.1.1 UVB

311- nm NBUVB phototherapy has superior to PUVA phototherapy for the treatment of because it has been shown more effective by the clinical. It induces tyrosinase enzyme which is necessary to melanin production and rises the HMB45 level on the surface of melanosomes. NBUVB phototherapy, as monotherapy found vary results in repigmentation rate between 41.6-100% (55). However, from the study of Brazzelli et. al. (56) reveal that certain body sites respond better than others especially lesions on the face, neck and trunk. Better results were seen in patients aged less than 20 years and with recent vitiligo. Also the response rate of the hands and lower limbs were mild repigmentation (56). The frequency of treatment is typically two to three times a week, lasting between 10 week to 2 years. There were many studies revealed that NBUVB is better than PUVA phototherapy in stability and repigmentation of disease, while PUVA could receive faster repigmentaion (57).

3.3.1.2 UVA

UVA phototherapy is mostly given with the psoralen which is the photosensitizer called PUVA phototherapy. The mechanism of PUVA is involved inducing hypertrophy of melanocytes and increase melanosome activities. Also it induced melanocytes in hair follicles and induced releasing inflammatory mediators from keratinocyte and some of them might act as melanocyte growth-stimulatory factors (MGSF). MGSF could increase the remaining melanocytes in hair follicle. Moreover, PUVA treatment could reduce the VAMA expression on the cell membrane of melanocytes and reduce epidermal Langerhans cells, which may block the antibody-dependent cell-mediated cytotoxicity to melanocytes in vitiligo lesion (58). Therefore, perifollicular repigmentation may occur.

FDA approved PUVA for the treatment of vitiligo. However, according to the study of El-Mofty M. et. al. (59) only high dose of UVA (15 J/cm2) received three weekly sessions, a total of 48 sessions over 16 weeks could induce repigmentation rate of 60% in half of subjects. So broadband UVA alone, without psoralens, may be the therapeutic value in vitiligo with appropriate doses.

Vitiligo enhanced with psoralen could induce effective repigmentaion. From the study of Hann S. et. al. (60) vitiligo patients were treated with oral 5-methoxypsoralen (5-MOP) and UVA irradiation once or twice weekly over a period of 2-10 months. Overall, 78% of the patients showed effective repigmentation especially on the face and trunk. the distal part of limbs lesion was less responsive (60).

3.3.2 Safety of phototherapy

3.3.2.1 UVB

NBUVB phototherapy may cause the side effect as same as PUVA therapy such as erythema, itching, burning, desquamation, transient hyperpigmentation, blistering, ulceration, and xerosis. However NBUVB has no increased risk both melanoma and non-melanoma skin cancer. According to the study of Hearn R. et. al. found that from the 352 patients receiving > or = 100 treatments of NBUVB, they found no significant association between NB-UVB treatment and BCC, SCC or melanoma. However, the evolution of skin cancers are slow, the ongoing risk management is important (61).

3.3.2.2 UVA

It is important to ensure proper dose irradiation especially initial treatment phase. Missed treatment needs to adjust the dose, decreased the dose by 25% every week of the time missed. Start over at the initial dose if 4 weeks were missed.

Itching, erythema, and gastro-intestinal disturbances occurred commonly in vitiligo patients which were treated with PUVA (62). From the study of Abdel N. et. al. (63) found that vitiligo treated with topical and systemic PUVA therapy for many years developed extensive and widespread lentigines. The lentigines were noted not only in the normal skin but also within the depigmented lesions, in the exposed and unexposed skin areas (63).

Erythema, itching are the common side effects. Blisters of second degree burns could developed in vitiligo patients who performed wrong irradiation doses or sunbathed after applying psoralen (64). Recommendation to extreme sun protection for 24 hours after PUVA phototherapy to prevent the additional effect of UV light. Nonmelanoma skin cancer and melanoma could be found in increased risk with PUVA therapy. A report of a cohort of 1380 patients found the rising of risk for melanoma in high dose treated patient 15 years after the first treatment (65).

3.4 Surgical therapy

Surgical therapy is an option for patients who medical therapy has failed and has a stable recalcitrant lesion. However, it could be worsen after the surgery if patients have Koebner phenomenon.

3.4.1 Blister graft

The blister graft technique is the one of the most common types of surgical treatment for stable lesion. The advantages are cost-effectiveness. It is used to create a donor subepidermal bulla. The flexor aspect of the arm could be the most appropriate site to produce bulla. The roof of the bulla is removed and transplanted into the recipient site. The bulla is induced by using different technique, applying the cup or syringe by negative pressure. Only minimal scarring might occur at the donor site but show good healing (66). A blister grafting could perform by using suction blister, or laser

abrasion. From the study of Sachdav M. et al. revealed that technique uses a 20-mL syringe inducing the donor graft and pulse the erbium: YAG laser could create graft recipient sites precisely both in width and depth (67).

The efficacy of suction blister grafting is very effective for stable vitiligo lesion and has been successful repigmentation in some patient who has leukotrichia on hairy regions such as scalp and eyebrows (68). According to the study Gupta S. et al. found in 22 vitiligo/leukoderma patients treated with suction blister grafting, the pigmentation was complete in 20 out of 22 patients with no complications. Two- to threefold expansion of pigmentation of the graft was found after 3-4 months in most patients. Furthermore, adding phototherapy using ultraviolet A (UVA) bulbs in combination with psoralen or khellin in postoperatively immediately after take of grafts onto recipient sites may enhance repigmentation. Phototherapy could stimulate melanocytic proliferation, function and as an immunosuppressant especially halting the process of melanocytic destruction (69). However, the Koebner phenomenon could occur by this method especially with generalized vitiligo (70).

3.4.2 Spit-thickness skin graft

The split-thickness skin graft(STSG) is also used in stable or recalcitrant vitiligo but it is less common than blister graft. It could be used with large areas. From the study of Acikel C. et al. reveal that in treating large stable and recalcitrant vitiligo, skin graft take was good result with early and complete repigmentation including excellent color match (71). According to Agrawal K. et al.(72) revealed a case series from 32 sites in 21 treated localized, stable, and refractory vitiligo patches by dermabrasion and thin spit-thickness skin grafting (STSG) found excellent result, 100% repigmentation and color match, with a long-term follow up. Moreover, spit-thickness skin grafting (STSG) could be used in hair-bearing areas and any area of the body (72). However, this technique needs for an experienced surgeon, required the use of anesthesia and could obtain the color mismatch in the receiving area.

3.4.3 Punch graft

Punch grafting or minipunch grafting is the simplest and the most inexpensive methods. It is useful in small lesion. From the study of Malakar et al. (73) evaluated 1,000 stable and recalcitrant vitiligo patients treated with punch grafting (PG). Although most of the patient showed good results, there were various side effects such as

dot appearance, colour inhomogeneous. A pilot study of Schdev M. et al. (74), evaluate the safty and efficacy of pulsed erbium:YAG laser ablation to create graft recipient site with repigmentation around 90% to the surrounding skin.

Punch grafting with added PUVA therapy showed better repigmentation. However, punch grafting with topical corticosteroid after PUVA therapy in stable vitiligo showed minimal repigmentation and was not statistically significant comparing with no topical steroid group (75). Topical steroid adding in patient after punch grafting and PUVA phototherapy did not increase the repigmentation rate.

3.4.4 Autologous melanocyte suspension transplant

A donor autologous melanocyte site receiving by punch graft, blister graft, curettage or spit-thickness skin graft released cells into a suspension and cultured in selected cases. There are some technique transplants both keratinocyte and melanocytes (76). There were 56% of vitiligo patient achieved 95% repigmentation with 6 month follow up (77). There were some side effects such as scarring, infection, and hyperpigmentation. Koebner's phenomenon and depigmentation could occur in donor and recipient sites. Cobblestoned texture is the most common side effect.

CHAPTER 4
PSYCHOLOGICAL ASPECT

Vitiligo does not directly cause physical impairment but its effects can considerably influence patient well-being and with a devastating burden on daily living (78). Vitiligo has a significant psychological impacts due to its cosmetic disfigurement (79). Due to the nature of its visibility and chronicity, it may cause a significant burden on patients' quality of life (80). The effect ranges from mild to a severe depression and social anxiety, especially for those who have lesions on exposed skin (81). Moreover, stigmatization from vitiligo patients' physical appearance might lead to poor body image, low self-esteem, and social isolation which may finally bring to clinical depression or depression symptoms (82). Also, depression, anxiety, and other psychiatric comorbidities are common in vitiligo patients (80).

Barisic-Drusko et. al.(10) proposed that psychological factors, such as stress could trigger the onset of vitiligo. Compared with other people who suffered from visible skin disease, vitiligo patient showed more stressful significantly. Manolache et. al. (83) revealed that a stress incidence was usually retrospectively demonstrated as having come out before disease started. Therefore, stress could be the role play in an aggravation of disease. Nevertheless, there were both researcher and subject recall bias in these studies which performed retrospective accounts. In the study of Picardi et. al. (84) revealed that psychological factors such as emotional awareness from perception of society effected relatively more than a single stressful occurrence. These factors may promote disease progression via emotional regulation and stress management. However, it was obviously seen that there were several limitations in the studies especially the methodology within the studies which could not examined the onset and exacerbation of vitiligo triggered by psychological stress.

4.1 Stigmatization

Experiences of stigmatization are very common. More than half of patients have been asked questions about their lesions, more than half described staring at them, almost half of them experienced rude remarks and less than 20% revealed discrimination

at work. Recently the study of Kruker et al. demonstrated that stigmatization was revealed significantly on younger patient, often bringing to an impaired QoL (85). However, friendships with other children were unaffected. In conclusion, reporting negative experiences from childhood vitiligo associated with a child's health-related quality of life (HRQL) impairment in young adults with vitiligo.

In the study of Thompson A. et. al. reported that due to vitiligo was a visible disease could lead to being discrimination from society and also reported experiencing bias and bullying (86). Another study published in British journal of dermatology studied in-depth analysis of Thompson AR. et. al. demonstrated that the vitiligo patients said that having lesion make them horrible and disgusting (87). It was intense emphasis that being visibly different in general population made the patient stress and social impact was very influence. People living with vitiligo might stigmatize form intrusive stares and negative interaction which would bring the difficulty and uncomfortable in daily life. Also, it took time to deal with. The findings of the study about stigmatization of vitiligo patients in British South Asian women suggest that for future research to search cultural associations of disfigurement and of adjustment to chronic skin disorder. Additionally, they suggest that in combination with active treatment there may be a need for community interventions aimed at dispelling misconceptions and raising awareness of sources of support and treatment.

4.2 Psychological impact

It's important to realize high levels of psychological impact being associated with the discrimination, therefore it was written in the clinical guidelines for vitiligo that psychological stress was the main impact of vitiligo patients and it effected of disease itself (88).

In the UK, Kent G. and et. al. (89) reported prevalence of psychiatric morbidity in vitiligo patient was 35%. Also, in Italy, Picardi et. al. (90) revealed 25% prevalence. In India, patients have extensively high social problems and more severe psychiatric morbidity than others countries (91). However, a study performed in India had reported a prevalence of 25% of their sample to have psychiatric problem (92).

Porter J. and et. al. (93) was the person who stressed that for level of distress, psychosocial factors were more significant than the severity of disease. It brought the dermatologist's attention to the psychological aspect. Ongenae et. al. (94) showed the raised levels of lower self-esteem, lower quality of life but higher level of stigma, disability, anger and afraid of negative reactions. It was found 75% vitiligo patients attending clinic and they found their disfigurement moderately or severely unbearable.

4.2.1 Psychological assessment instruments

Nowadays, emotional and psychological factors has been important. Vitiligo involved in physical and psychological factors. A disease specific instruments for estimating quality of life in Vitiligo has been proposed as in Table 4.1

Table 4.1 Summary of papers reviews psychological assessment instruments

Author	Title	Instrument	Year	Size (n)	Findings
Sangma et al (95)	Quality of life and vitiligo: a study in a teaching hospital from north-east India	DLQI, Hamilton Depression Scale	2015	100	Married females have a lower quality of life than married males due to discrimination and in-law relationships 59% of patients with vitiligo had depression
Mahsa et al (96)	Prevalence and Frequency of Depression in Patients with Vitiligo	Hamilton Depression Scale	2015	110	Strong relationship between depression score and age, sex and occupation May lead to the mental, social, occupational and psychological problems
Sampogna et al (97)	Impact of different skin conditions on quality of life	Skindex-29 (sx) Skindex-17 (ps)	2013	2478 2402	Patients with vitiligo have not clinically severe, but high impact on psychosocial life.
Krishna et al (98)	Vitiligo impact scale: an instrument to assess the psychosocial burden of vitiligo	VIS	2013	100	Validation of VIS: scores on the scale psychosocial impact of vitiligo and can be used to a guide for treatment decisions and also psychological intervention May be beneficial to evaluate treatment modalities in decreasing the psychosocial burden of vitiligo

Table 4.1 Summary of papers reviews psychological assessment instruments (cont.)

Author	Title	Instrument	Year	Size (n)	Findings
Pahw et al (99)	The psychosocial impact of vitiligo in Indian patient	Interview	2013	50	Patients were unhappy with the way they now looked and seriously undermined the way they felt about themselves Disease was a cause for worry, depression, and low self-esteem Difficult to participate in competitions in school, leave school for doctor visits Unmarried anticipate difficulty in getting married, and the disease was not revealed to the partner at the time of marriage due to embarrassment or the fear of rejection. One patient had been rejected by her in-laws and told to get divorced if not cured. The severity of the psychosocial impact can be seen in some patients who constantly thought about their disease and could not bear to look at themselves in the mirror even if affected areas were covered
Alghamdi et al (100)	Public perceptions and attitudes toward vitiligo	Questionnaire	2012	924	33.1% believe vitiligo is contagious, 56.1% do not want to marry a patient with vitiligo

Table 4.1 Summary of papers reviews psychological assessment instruments (cont.)

Author	Title	Instrument	Year	Size (n)	Findings
Wang et al (101)	Health-related quality of life and marital quality of vitiligo patients in China	DLQI, SF-36, eNRICH	2011	101	>50% of patients report relationship problems with the opposite sex; most of patient feel embarrassment and trouble 16% of vitiligo patient revealed sexual problems, however 25%–35% had a depression
Chan et al (102)	Investigating factors associated with depression of patients with vitiligo in Singapore	Center for epidemiologic Studies Depression Scale, Rosenberg Selfesteem Scale, DLQI	2011	145	vitiligo patients had in both quality of life and self-esteem, which is particularly negatively affected Suicidal ideation is a major issue
Thompson et al (103)	Vitiligo linked to stigmatization in British South Asian women: a qualitative study of the experiences of living with vitiligo	Face-to-face or e-mail interview	2010	7	vitiligo is seen to negatively affect social acceptability and marriage potential Development of the “spoiled identity” in relation to the internalization of the experience of stigmatization
Talsania et al (104)	Vitiligo is more than skin deep: a survey of members of the vitiligo Society	Questionnaire	2010	520	Avoid sunburn can have major effects on behavior and social participation outdoor activities are less attention to play

Table 4.1 Summary of papers reviews psychological assessment instruments (cont.)

Author	Title	Instrument	Year	Size (n)	Findings
Alghamdi et al (105)	Beliefs and perceptions of Arab patients with vitiligo regarding their condition	Illness perception questionnaire	2010	164	>50% revealed depression when they think about their illness >50% revealed anxiety in females, both anxiety and depression were more prevalent in female patients

Abbreviations: DLQI, Dermatology Life Quality Index; SF-36, Short Form-36; VIS, vitiligo Impact Scale; ENRICH, evaluating and nurturing relationship issues,communication, happiness.

4.2.1.1 Quality of life

Vitiligo has a significant impact on the physical and psychological of patients, including loss of skin for photoprotection, compromised cutaneous immunity, and a decrease in quality of life which is more impact in the first two decades of life (106).

Many studies have showed significantly affect the quality of life (QoL) of vitiligo patient especially in cases where visible area or the genitals were affteced (78, 107). From the study of Barasa et al, using The Dermatology Life Quality Index (DLQI) scale compared with other skin diseases, including vitiligo, psoriasis, alopecia areata, atopic dermatitis, and rosacea found that a lower impact on QoL for vitiligo compared with atopic eczema, psoriasis, and generalized pruritus as shown in Figure 4.1 (108). However, poor score on health-related quality of life (HRQL) questionnaires has been accounted in vitiligo patients which the depigmentation causes the progression of psychiatric morbidity.

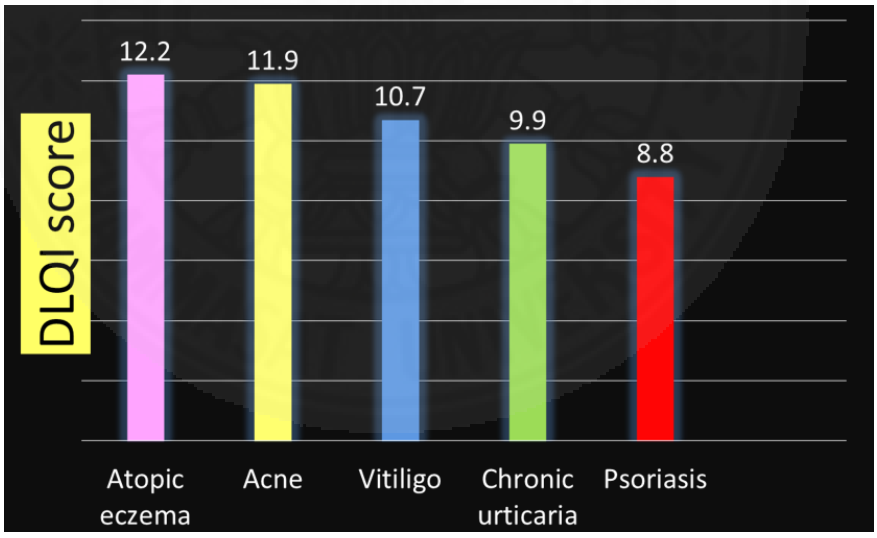

Figure 4.1 Disease and Conditions which the DLQI has been used DLQI, Dermatology Life Quality Index

Comparing of other medical conditions, psychiatric morbidity has been reported the most in dermatological conditions varies from 20 to 70% (109-111). Skin diseases demonstrate by lesions which could be seen by others. Dermatological

conditions like psoriasis, vitiligo, and acne lead to stigmatization and social isolation which bring psychiatric morbidity, depression and anxiety more than other general medical patients. Iniyan S. et al.(112) assessed the prevalence of psychiatric morbidity, depression and anxiety in psoriasis and vitiligo patients and compared with general medical conditions as controls. The scale used were 1) General Health Questionnaire – 28 (GHQ – 28) which detect nonpsychotic psychiatric illnesses and which has been shown to be reliable and valid, Hamilton Rating Scale for Depression (HAM D) which assesses severity of depression and Hamilton Rating Scale for Anxiety (HAM - A)- which assesss severity of anxiety and is reliable and valid. Diagnosis of depression and anxiety were made by psychiatrist with ICD-10 criteria. The result was shown in Figure 4.2-4.4

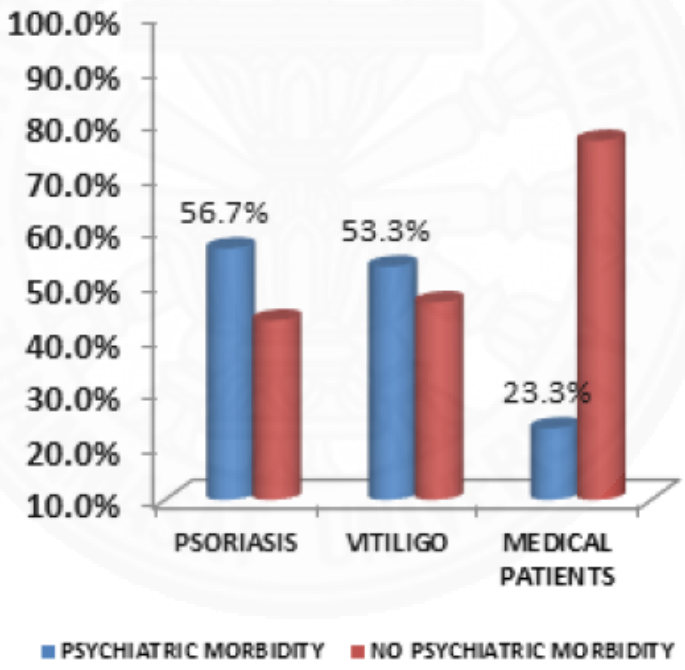

Figure 4.2 Psychiatric morbidity in psoriasis, vitiligo and general medical patients (112)

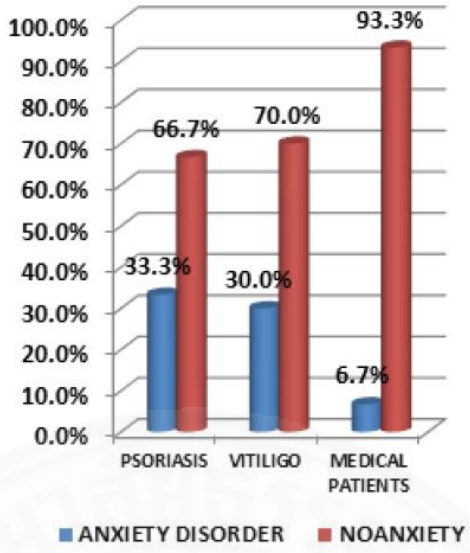

Figure 4.3 Comparison of presence of anxiety symptoms between psoriasis, vitiligo and general medical patients (112)

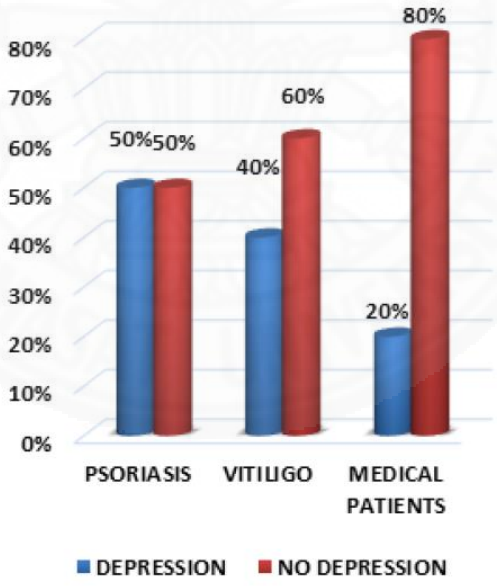

Figure 4.4 Comparison of presence of depressive symptoms between psoriasis, vitiligo and general medical patients (112)

From the study of Tsintsadze et al. (109), the level of anxiety and depression in dermatologic patient was reported by using Hospital Anxiety and

Depression Scale (HADS). The patients with Psoriasis, Vitiligo, Acne, Alopecia Areata, Neurodermatitis, Scabies, Eczema and Other diseases (Atopic Dermatitis, Chronic Urticaria, Lichen Planus, Herpes Zoster, Melasma, Warts and Etc.). However, it was found that there are high frequencies of manifestation in Psoriasis (anxiety - 83.3%, depression - 69.4%, both - 38.8%), Vitiligo (anxiety - 66.7%, depression - 60%, both - 33.3%), Eczema (anxiety - 73.3%, depression - 56.6%, both - 26.7%) and Acne (anxiety - 78.4%, depression - 54%, both - 21.6%) as shown in Figure 4.5

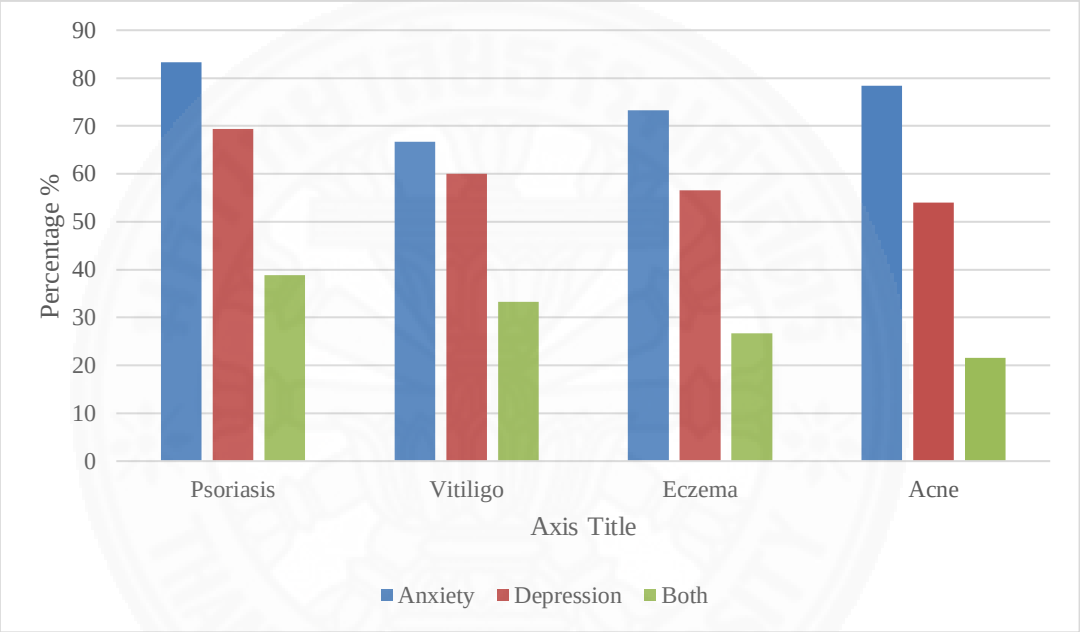

Figure 4.5 Comparison of percentage Anxiety, Depression and Both in Psoriasis, Vitiligo, Eczema and Acne

From the study of Mahsa S. et al (96), aimed to study the prevalence and severity of depression in vitiligo patient compared between vitiligo and healthy controls by using Hamilton depression scale found the significant relationship between depression score and age, sex and occupation especially in patients between 14-20 years old, female and unemployed. However, there was not significant differences between depression score and percentage of skin involvement nor influence of concomitant disorders. Nevertheless, the prevalence of depression found in patient with 50% body surface involvement as shown in Figure 4.6

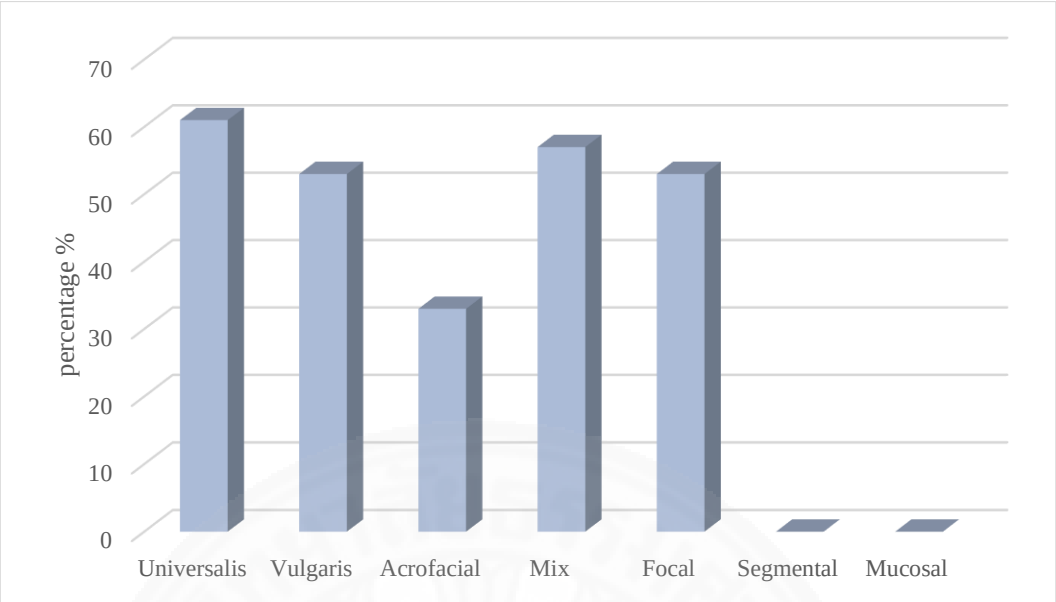

Figure 4.6 Frequency of the depression according to the clinical type (n= 110) (96)

According to the study, it has been noted that a negative self-image may bring to the expression of depressive symptoms (91). Additionally, the factors that might influence to the depression include age below 50, female gender, low self-esteem, disease duration of more than five years, and low HRQL scores (108).

Gender may influence the way vitiligo affects quality of life, and there is some evidence to suggest that women may be more severely affected (113, 114). For example, women with vitiligo were found to score highly on the Dermatology Life Quality Index in comparison to men with vitiligo and they are also more willing to pay for private treatment to achieve complete disease remission if it was available (115). However, anecdotal clinical reports suggest that men can also be severely distressed by the condition and so gender in itself is unlikely to account for the variation in distress.

4.2.1.2 New Psychological assessment instruments

Another instrument which can be considered as a possible risk factor for medical condition is "Alexithymia" which is a personality construct that is normally distributed in general population composed of following factors: (a) limited ability in identifying and describing feelings; (b) constricted imaginary activities; and (c) externally oriented- cognitive style. It is considered as one of the risk factors for a variety of medical and psychiatric disorders. In comparison of psoriasis, alopecia areata,

vitiligo and acne vulgaris with control group Toronto Alexithymia Scale (TAS-20) was used to assess the prevalence of alexithymia and found significant differences between the vitiligo, alopecia areata, psoriasis patients but association was not found in individuals with acne vulgaris. It might be promising in evaluation and management of alexithymia which would be better the treatment of skin disorders and improve the quality of life in patients (116).

4.2.2 Perception and attitude toward vitiligo

Beliefs about illness have been associated to psychological adjustment and cultural factors may influence to these beliefs. In some areas in India and Africa vitiligo has been routinely mistaken for leprosy. Such inaccurate beliefs about the nature of the condition can have devastating effects for those living with it. When people have this condition, they may be perceived as being 'untouchable' and hence disowned from the community. However, more subtle beliefs about cause of the condition have also been reported in studies. For example, Porter et. al. (117) reported that for Black Americans living with vitiligo, while there were few objective differences in the patterns of distress in comparison with other groups, there existed lay beliefs that vitiligo resulted from engaging in sexual activity with Caucasian people.

Psychosocial adjustment is related with beliefs about illness and it depends on each culture and ethnicity. The high level of stigmatization in the Nigerian African have been related with the confusion between leprosy and vitiligo disease (118). Asian populations has found particularly stigmatizing, especially in relation to relationships, and higher level of psychological morbidity than European (110). One study showed that the extent of depigmentation does not relate with the psychosocial impact (89). Feeling embarrassed had been reported in the majority of vitiligo patients which may bring to low self-esteem and social isolation (104).

In the study of perceptions and attitudes toward vitiligo had revealed that it has been associated with misconceptions. According to the study of Khalid et al. in Saudi Arabia found a number of common public misconceptions about vitiligo. Approximately 20% thought that it was cause by an infection and poor hygiene. Moreover, belief about evil-eye, spell and evil spirits revealed that the cultural myth related to vitiligo Figure 4.1. It also revealed that misconceptions were more prevalent in young people and low education (100).

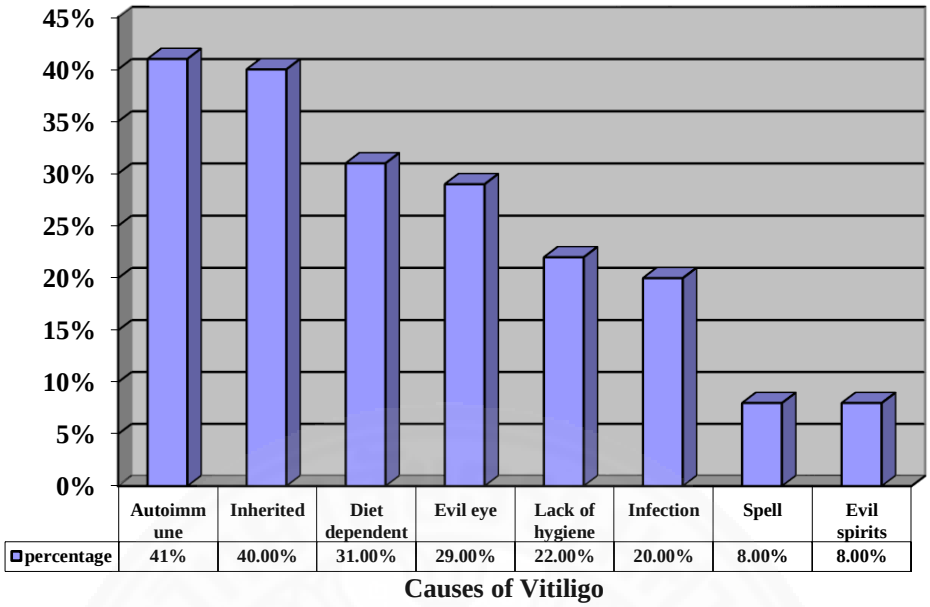

Figure 4.7 Causes of vitiligo according to the 924 participants of the study. Adapted from the study Khalid et al. (100)

The influence of this myths had made others act negatively toward vitiligo patients and hence often lead to the feelings of profound stigmatization (119). Moreover, this misconceptions related to the unwilling to marry vitiligo patients particularly males and younger individuals. This may be explained that vitiligo patients especially single women aged 40 years or more experience the common difficulties in the beginning of relationship and in social life more than younger people. Also, the clinical severity in women had influenced on functioning items and the location of vitiligo lesions on arms, feet and legs had a strong impact on social relationships (107, 114).

The meaning others attribute to the change in appearance is also important in adjustment and recently reported by Thompson AR. et. al. (87) upon British Asian women's experience of living with vitiligo. They found that values related to appearance, status and myth associated with the cause of disease were subtly related to cultural beliefs (87).

CHAPTER 5
PSYCHOLOGICAL INTERVENTION

Existing clinical guidelines for vitiligo (88) advocate that the provision of psychological support is a significant part of vitiligo treatment and that in the future research is important to establish the response of treatments specifically for vitiligo. From the last update of a Cochrane systematic review, it was concluded that more studies should evaluate psychological interventions (120).

5.1 Helping patient finding problem

Making assumptions about the characteristic of patient's problem and the way which the problems affect them should avoid because there is a danger of over-emphasizing in their problems. Physician may allow the patient to explain what they are worry and not assume that patients will tell or discuss and their feelings immediately. Physicians have to be patient and let them tell gradually (121).

5.2 Cognitive-behavioral therapy

Cognitive-behavioral therapy (CBT) is a therapy which the perception influences how the patient think and behave, and psychological problems are acquired and altered through learning processes (122-125).

Currently there are only few studies examined the efficacy of psychological interventions for vitiligo. The study conducted assessed the efficacy of cognitive behavioral-orientated therapy (CBT). It concluded that cognitive behavior therapy was an alternative treatment for patients in coping with vitiligo disease and it could be beneficial on the progression of the condition itself (126).

Further psychological randomized control trial (RCT) was conducted by Papadopoulos et al. (127) with 45 participants randomized to group CBT, group person-centred therapy or no treatment underwent 8 consecutive weeks of therapy and psychological and physiological gains were recorded before therapy, after therapy and at 6 and 12-

month follow-up. However, a result of the two group therapy programs show little psychosocial or physiological benefits. This study did not find any effectiveness of psychological therapy. Nevertheless, both of the studies from Papadopoulos et al. have some several limitations, small samples size, and not targeted social anxiety, which has been thought to be a main psychological issue in living with vitiligo.

5.3 Psychoeducation

Giving the patient information about their disease including etiology, cause, treatment option and prognosis could be beneficial in enhancing compliance with treatment. Also, psychoeducation directed at educating the patient may be useful in decreasing the patient's sense of isolation (123).

Recently there are the study in 2014 from Shah R. et al.(128) developed of a psychosocial self-help leaflet intervention designed to reduce social anxiety in vitiligo patients. The clinical significant change was achieved in those using the self-help leaflet. Nevertheless, statistical significance was not found, so further research is warranted.

5.4 Screening for depression

Screening for depression in vitiligo could be performed by health care professional setting. There are low level of awareness in recognized this problem. For the diagnosis, asking about appearance directly is needed, as these patients are often too embarrassed to reveal their problem and may find it extremely difficult to reveal their symptoms. The patient need help from psychiatrist as a problem of depression or social phobia (123, 129). Therefore, health care professionals should be especially sensitive when exploring the hidden distress and disability commonly related with disorder (123).

Vitiligo has a significant psychological burden. The effect ranges from mild to a severe depression. Also it could be impact to social anxiety, especially for those who have lesions on exposed skin. Current intervention are effective in short-term benefit by enhancing physical appearance of the patient. However, functional and social dimension was less achieved, which are more dependent on social and cultural myth. Among of misconceptions and negative attitudes from public, educating the society about vitiligo

which is one of social intervention would be important steps to bring the better psychological well-being to vitiligo patients.

CHAPTER 6
RESEARCH METHODOLOGY

6.1 Study Sample

6.1.1 Target population

The participants were recruited from healthcare and non-healthcare workers attending Thammasat Hospital and Thammasat University Hospital. All the target population would be randomized by systematic random sampling method

6.1.2 Sample Size

Sample size calculation was estimated from the prior study by Trinh and colleagues Nhat Trinh et al. (130) The study revealed that the mean knowledge score improved between the two responder group statistical significantly. Mean knowledge from pamphlet group increased 1.76 ± 1.42 and from video group increased 3.96 ± 1.69. So in this study, this formation would be perform as shown below.

$$n = \frac{2\left(Z_{1-\alpha/2} + Z_{1-\beta}\right)^2 \sigma^2}{\left(\mu_2 - \mu_1\right)^2}$$

The sample size

$Z_{1-\alpha/2}$ is type I error by $\alpha = 5\%$; $Z_{1-\alpha/2} = 1.96$

$Z_{1-\beta}$ is type II error by $b = 10\%$ $Z_{1-\beta} = 1.28$

m_1 = Mean knowledge from pamphlet group increase from the baseline 1.76±1.42

m_2 = Mean knowledge from pamphlet group increase from the baseline 3.96 ± 1.69

s^2 = variation of population = $S.D^2$ from

Pooled variance $\sigma^2 = \frac{(n_1-1)S.D_1^2+(n_2-1)S.D_2^2}{(n_1-1)+(n_2-1)}$

$$n = \frac{2(Z_{\alpha/2} + Z_{\beta})^2 \sigma^2}{(\mu_2 - \mu_1)^2}$$

$$= \frac{2(1.96 + 1.28)^2 (1.56)^2}{(1.76 - 3.96)^2}$$

= 11 participants / group

Plus 10% drop off per group = 2 participants / group

In this study, we would perform randomization in all ages, educational level and income level so we recruited 26 participants for calculation.

6.1.3 Inclusion criteria

The inclusion criteria were as follows

1. Age 18 and older
2. Not suffering from vitiligo
3. Able to speak, read, and write Thai

6.1.4 Exclusion criteria

Unable to complete the survey

6.1.5 Discontinuation criteria

Participants' refusal to participate the study

6.2 Research Design

6.2.1 Development of the Questionnaire

A simple Thai self- administered questionnaire was created by the researcher. The questions included 3 parts; demographic data, attitude part (8 questions) and knowledge part (15 questions) . The validity of the questionnaire was assessed by two dermatologists and one psychologist. The questionnaire was refined until all experts did not suggest changes and agreed that all the contents in the questionnaire were clear and easily read.

Reliability assessed by using a test- retest method and an internal consistency method. Following agreement to participate in the study, a randomization was performed to select 30 participants who was available to perform 2 separate

questionnaire assessment. Contributing to test-retest measures asked to repeat the questionnaire independently using the same questionnaire in pretest and posttest in the first day and 3 days later. For test-retest reliability, a single intra-class-coefficients (ICC) was measured and 95 % confidence interval (CI) with ICC <40 indicating poor agreement, 0.40–0.60 fair agreement, 0.60-0.80 good agreement and >0.80 excellent agreement.

For internal consistency reliability, Cronbach's alpha was measured and resulted in 0. 867. To test criterion-related validity, the relationship with the questionnaires was analyzed using Pearson's correlation coefficient. Collected data was analyzed using SPSS WIN 18.0 (PASW Statistics for Windows, Version 18, SPSS Inc., Chicago, IL, USA).

6.2.2 Development of the Introduction video

The video portrayed a customer being served at a restaurant by a waitress with visible white patches on both hands. There was no exact word or sound identifying the condition/disease the waitress was. The validity of the introduction video assessed by three dermatologists. Validation met the collaboration of experts and based on expert consensus.

6.2.3 Development of the Video and Pamphlet vitiligo education

The validity of the pamphlet assessed by three dermatologists. The information in the video was exactly the same as in the pamphlet. Validation met the collaboration of experts and based on expert consensus.

6.2.4 Sample and procedure

Approval for this randomized controlled study was issued by the Ethics Committee of Thammasat University Review Board. Eligible participants were invited to participate with an explanation that it was expected than half an hour of time would be required on the day of visit and also needed follow up in 1 week. Informed consent process was performed to the participants informed of the objective of this study. Participants were randomized to either receive the experimental (educational video) or control (educational pamphlet) group of the study. In the experimental group (video group), each participant watched a video of which the duration was about 4 minutes. In the control group (pamphlet group), each subject received a brief written handout, which was developed based on content in educational vitiligo video in experimental group. Each participant was given a 10-minute time limit to read through the pamphlet.

Immediately after the educational intervention, participants in both arms of the study completed the 8-item questionnaire in attitude part and 15-item questionnaire in knowledge part (posttest Day 0). Finally, the posttest day 7 would be performed in both groups. We demonstrated the flow chart below.

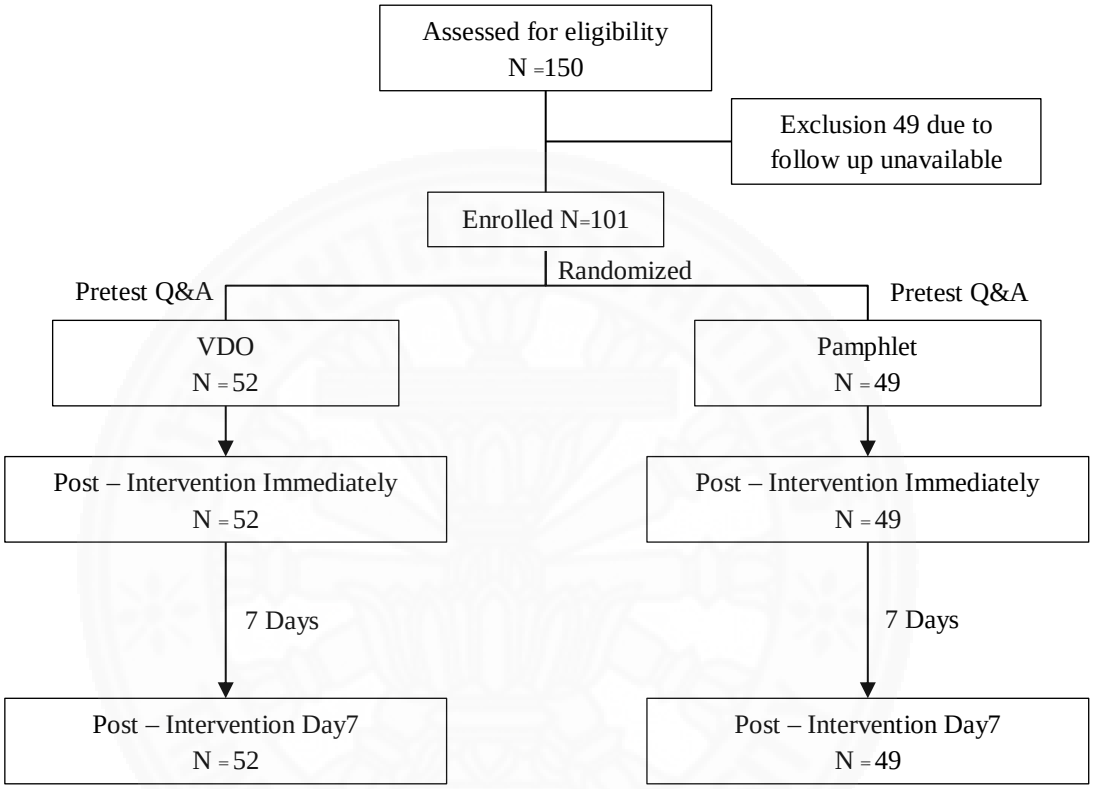

Figure 6.1 Participant Flow Chart

6.2.5 Outcome measurement

6.2.5.1 Attitude part

All eight questions was on the chart below

Table 6.1 Questions attitude part

Questions
1. Would you mind shaking hands with the person in the video?
2. Would you mind having a meal prepared by the person in video?
3. Would you mind being served by the person in the video?
4. Would you mind sharing food with the person in the video?
5. As an employer, would you mind hiring the person in the video?
6. As a woman/man, would you mind dating the person in the video?
7. As a girlfriend/boyfriend, would you mind getting married to the person in the video?
8. As a husband/wife, would you mind living together?

The answer to all 8 questions were scored on a Likert scale. The format of a typical five-level Likert item in the questionnaires consists of

1. Strongly disagree
2. Disagree
3. Neither agree nor disagree
4. Agree
5. Strongly agree

A scale could be created as the simple sum of questionnaire responses over the full range of the scale. Therefore, Likert scaling assumed distances between each item are equal. Sum of questionnaire responded from 8 to 40.

6.2.5.2 Knowledge part

The answer to all 15 questions was be scored on the chart below.

Table 6.2 Questions Knowledge part

Questions	**Yes**	**No**	**Not Sure**
1. Is this condition exaggerated by exposure to psychological stress?	1	0	0
2. Is this condition hereditary?	0	1	0

Table 6.2 Questions Knowledge part (cont.)

Questions	Yes	No	Not Sure
3. Do you know what condition the person in the video has?	1	0	0
4. Does the disease have a treatment?	1	0	0
5. Is this condition associated with an immune system defect?	1	0	0
6. Could the cause of this condition seen in the video be unknown?	1	0	0
7. Is this condition caused by specific food?	0	1	0
8. Is this condition related to an internal organ abnormality?	0	1	0
9. Is this condition contagious by sharing things?	0	1	0
10. Could this condition possibly be caused due to poor hygiene?	0	1	0
11. Could this condition be a form of leprosy?	0	1	0
12. Is this condition contagious by touch?	0	1	0
13. Is this condition contagious by having a meal together?	0	1	0
14. Is this condition contagious by airborne transmission?	0	1	0
15. Is this condition lethal?	0	1	0
Total Scores	**0 - 15**		

The total score will be computed using the summation of individual scores, and therefore ranged between 0 and 15.

The percentage of total knowledge score will be computed for each participant and utilized for statistical comparisons.

6.2.6 Randomization

Subjects were randomized to the control or experimental arm at a 1:1 ratio on the basis of random number generation (MS Excel, Redmond, WA). Due to the nature of the educational intervention, investigators associated with the study were not blinded to group assignment during clinical trial.

6.3 Data Analysis

Intervention participant's knowledge and attitudes toward vitiligo were measure both prior to receiving the intervention and immediately following the intervention. The data analysis was shown in Table 6.3. All statistical analysis was performed with STATA version 11. Average values were represented as mean (SD) and p-values less than 0.05 were considered statistically significant.

Table 6.3 Outcome measurement in each part

Part	**Timeline**	**Within group**	**Between groups**
Part 1	Baseline Knowledge and Attitude	1.Mean +/- SD (Quantitative data) 2. Proportions (%) (Qualitative data)	1. Independent t-test (Normal distribution) 2. Chi-square test or Fisher exact test (Category data)
Part 2	At Immediate	1. Wilcoxon signed ranks test (Non normal distribution)	1.Mann-Whitney test (Non normal distribution)
Part 3	At Day 7	1. Wilcoxon signed ranks test (Non normal distribution)	1.Mann-Whitney test (Non normal distribution)
STATA/SE version 13			

CHAPTER 7
RESULTS

7.1 Baseline characteristics

The response rate was 84.2%, with 101 of the 150 questionnaires being completed; 14 (13.9%) were male and 87 (86.1%) were female. The mean age was 31.05 ± 7.6 years. The socio-demographic characteristics of the participants are presented in Table 7.1.

Table 7.1 Baseline demographic characteristics of the participants

(n = 101)

Demographic	% (n)
Gender	
Male	13.9 (14)
Female	86.1 (87)
Age	
Range	20 - 62
Mean ± SD.	31.05 ± 7.68
Marital status	
Single	51.5 (52)
Married	40.6 (41)
Divorced	5 (5)
Separated	3 (3)
Education	
Elementary school or lower	2
High school	35
University or higher	64

Table 7.1 Demographic characteristics of the participants (cont.)

Demographic	% (n)
Occupation	
Housewife	2.0 (2)
Manager	19.8 (20)
Student	1.0 (1)
Employee	75.2 (76)
Retired	2 (2)
Family occupation associated with Healthcare workers	
Yes	11.9 (12)
No	83.2 (84)
Not sure	5.0 (5)
Income per month (Baht)	
0 – 10,000	2.0 (2)
10,000 – 50,000	69.3 (70)
50,001 – 100,000	19.8 (20)
>100,000	8.9 (9)

A total of 150 participants were enrolled in the study with 75 participants randomly allocated to the experimental group (VDO group) and 75 participants to the control group (pamphlet group). Table 7.2 summarizes their demographic characteristics. However, 52 participants in VDO group and 49 participants in pamphlet group could continue to the end of the process because they did not have time to visit in the 1-week following appointment. There were no significant between two groups in demographic data.

Table 7.2 Demographic data

Demographic	Pamphlet (n = 49)	VDO (n = 52)	p-value
Gender			
Male	9 (18.4%)	5 (9.6%)	0.203
Female	40 (81.6%)	47 (90.4%)	
Age,mean ± SD.	30.9 ± 8.62	31.19 ± 6.74	0.848
Marital status			
Single	29 (59.2%)	23 (44.2%)	0.374
Married	16 (32.7%)	25 (48.1%)	
Divorced	3 (6.1%)	2 (3.8%)	
Separated	1 (2%)	2 (3.8%)	
Education			
Elementary school or lower	2 (4.1%)	0 (0%)	0.334
High school	17 (34.7%)	18 (34.6%)	
University or higher	30 (61.2%)	34 (65.4%)	
Occupation			
Housewife	2 (4.1%)	0 (0%)	0.087
Manager	6 (12.2%)	14 (26.9%)	
Student	1 (2%)	0 (0%)	
Employee	2 (4.1%)	0 (0%)	
Retried	38 (77.6%)	38 (73.1%)	
Family occupation associated with Healthcare worker			0.392
Yes	8 (16.3%)	4 (7.7%)	
No	39 (79.6%)	45 (86.5%)	
Not sure	2 (4%)	3 (5.8%)	
Income per month (Baht)			
0 – 10,000	4 (8.2%)	3 (5.8%)	0.309
10,000 – 50,000	42 (85.7%)	49 (94.2%)	
50,001 – 100,000	1 (2%)	0 (0%)	
>100,000	2 (4.1%)	0 (0%)	

7.2 Knowledge part

7.2.1 Mean baseline knowledge

The mean knowledge score of this studied sample was 7.24 ± 3.38 (minimum = 0, maximum = 15) as shown in Table 7.3

Table 7.3 Total score of baseline Knowledge questionnaire scores

	N	Mean	SD	Median	Minimum	Maximum
Knowledge scores (Scores 0-15)	101	7.24	3.38	7.00	0	15

7.2.2 Factors associated with knowledge towards vitiligo

There was no statistically significant relationship between the knowledge score and gender (p=0.084). There was no notable relationship between the knowledge score and age (p=0.758) nor between the knowledge score and marital status (p=0.934). There was no statistically significant relationship between the knowledge score and education (p = 0.239). There was no statistically significant relationship between the knowledge score and occupation (p = 0.186) There was no statistically significant relationship between the knowledge score and family occupation associated with healthcare workers (p = 0.490). For this study we had divided the income per month (Baht) into the following groups: 0-10,000, 10,001-50,000, 50,001-100,000 and >100,000. There was no statistically significant relationship between the knowledge score and income per month (Baht) (p = 0.863). The data demonstrated in Table 7.4.

Table 7.4 Factors associated with knowledge towards vitiligo

Demographic		**Knowledge scores (0-15)**		
	n	**Mean**	**SD.**	**p-value**
Gender				
Male	14	5.79	3.36	0.084
Female	87	7.47	3.35	

Table 7.4 Factors associated with knowledge towards vitiligo (cont.)

Demographic		Knowledge scores (0-15)		
	n	Mean	SD.	p-value
Age				
18-30	51	7.16	3.50	0.758
31-50	47	7.23	3.22	
>50	3	8.67	4.93	
Occupation				
Housewife	2	3.50	0.71	0.186
Manager	20	6.30	3.25	
Student	1	11.00	0	
Employee	2	9.00	2.83	
Retired	76	7.49	3.40	
Family occupation associated with Healthcare worker				
Yes	12	8.25	2.42	0.490
No	84	7.06	3.54	
Not sure	5	7.80	2.49	
Income per month				0.863
0 – 10,000	2	6.00	.00	
10,000 – 50,000	70	7.11	3.40	
50,001 – 100,000	20	7.55	3.00	
>100,000	9	7.78	4.58	
Marital status				
Single	52	7.15	3.47	0.934
Married	41	7.22	3.55	
Divorced	5	8.20	1.64	
Separated	3	7.33	2.52	
Education				
Elementary school or lower	2	3.50	0.71	0.239
High school	35	7.60	2.70	
University or higher	64	7.16	3.70	

Values presented as frequency (%). P-value corresponds to ANOVA test.

7.2.3 Baseline of knowledge scores

As shown in Table 7.5, the question which received the fewest correct answers from participants was that which asked whether "stress can trigger vitiligo" (16.8%) followed by the question of whether vitiligo "is a hereditary disease" (22.8%). Only one-fourth of the participants could identify the disease when shown in the video (24.8%). Fewer than 50% of the people in our study had believed that vitiligo could be treated by various methods (41.6%), that vitiligo is an immune disease (43.6%), that the cause is still unknown (45.5%), that the cause is not the intake of contaminated food (46.5%) and the disease is not associated with internal organs (46.5%). More than 50% of the participants had believed that they cannot become infected by using shared items (51.5%) and that vitiligo is not caused by poor hygiene (57.4%). Participants also made a distinction between vitiligo and leprosy (57.4%). However, most of the participants (77.2%) recognized that vitiligo is not a life-threatening disease. Almost two-thirds of them recognized that vitiligo is not a contagious disease via breathing, having meal together, or touching (66.3%, 64.4% and 61.4% respectively).

Table 7.5 Baseline of knowledge scores

Questions (Correct answer)	**Correct answers**
	% (n)
1. Is this condition exaggerated by exposure to psychological stress? "Yes"	16.8 (17)
2. Is this condition hereditary? "Yes"	22.8 (23)
3. Do you know what condition the person in the video has? "Vitiligo"	24.8 (25)
4. Does the disease have a treatment? "Yes"	41.6 (42)
5. Is this condition associated with an immune system defect? "Yes"	43.6 (44)
6. Could the cause of this condition seen in the video be unknown? "Yes"	45.5 (46)
7. Is this condition caused by specific food? "No"	46.5 (47)

Table 7.5 Baseline of knowledge scores (cont.)

Questions (Correct answer)	Correct answers
	% (n)
8. Is this condition related to an internal organ abnormality? "No"	46.5 (47)
9. Is this condition contagious by sharing things? "No"	51.5 (52)
10. Could this condition possibly be caused due to poor hygiene? "No"	57.4 (58)
11. Could this condition be a form of leprosy? "No"	57.4 (58)
12. Is this condition contagious by touch? "No"	61.4 (62)
13. Is this condition contagious by having a meal together? "No"	64.4 (65)
14. Is this condition contagious by airborne transmission? "No"	66.3 (67)
15. Is this condition lethal? "No"	77.2 (78)

7.2.4 Overall knowledge score comparison between video and pamphlet

There was both no statistically significant difference in mean baseline knowledge scores towards vitiligo between pamphlet (7.04 ± 3.64) and video (7.42 ± 3.15) groups with $p = 0.573$ as shown in Table 7.6. However, a significant different was found in both post intervention, immediately and day 7 comparing mean knowledge score between pamphlet and video, respectively ($p = 0.002$ and $p < 0.001$ respectively).

Although there were a statistically significance in the mean difference between baseline and post immediate intervention, within-group analysis of pamphlet (5.10 ± 4.83) and video group (5.96 ± 3.24) ($p<0.001$ and $p<0.001$), comparing between-group analyses revealed that there were no significant difference ($p=0.294$). Mean difference between post immediate intervention and day 7, within-group analysis of pamphlet (-0.2 ± 2.66) and video (0.37 ± 1.27) reported statistically difference in video group ($p = 0.043$) but not in pamphlet group ($p=0.594$). However, mean difference between post immediate intervention and day 7, between-group analysis showed no statistically difference ($p = 0.179$) as shown in Table 7.6.

Table 7.6 Comparison of knowledge scores at baseline, post intervention, immediately and post intervention, Day 7. (Scores 0-15)

Score	Pamphlet (n=49)		VDO (n=52)		p-value[(b)]
	Mean	**SD.**	**Mean**	**SD.**	
Baseline	7.04	3.64	7.42	3.15	0.573
Post intervention, Immediately	12.14	2.55	13.38	1.03	0.002*
Post intervention, Day 7	11.94	2.46	13.75	1.05	<0.001*
Baseline to Immediately after intervention, Mean difference	5.10	4.83	5.96	3.24	0.294
p-value[(w)]	<0.001*		<0.001*		
Immediately to Day 7 after intervention, Mean difference	-0.2	2.66	0.37	1.27	0.179
p-value[(w)]	0.594		0.043*		
Baseline to Day 7 after intervention, Mean difference	4.90	4.57	6.33	3.59	0.083
p-value[(w)]	<0.001*		<0.001*		

Note: Values presented as mean ± SD. P-value corresponds to Independent t-test.
(*) Significant p<0.05

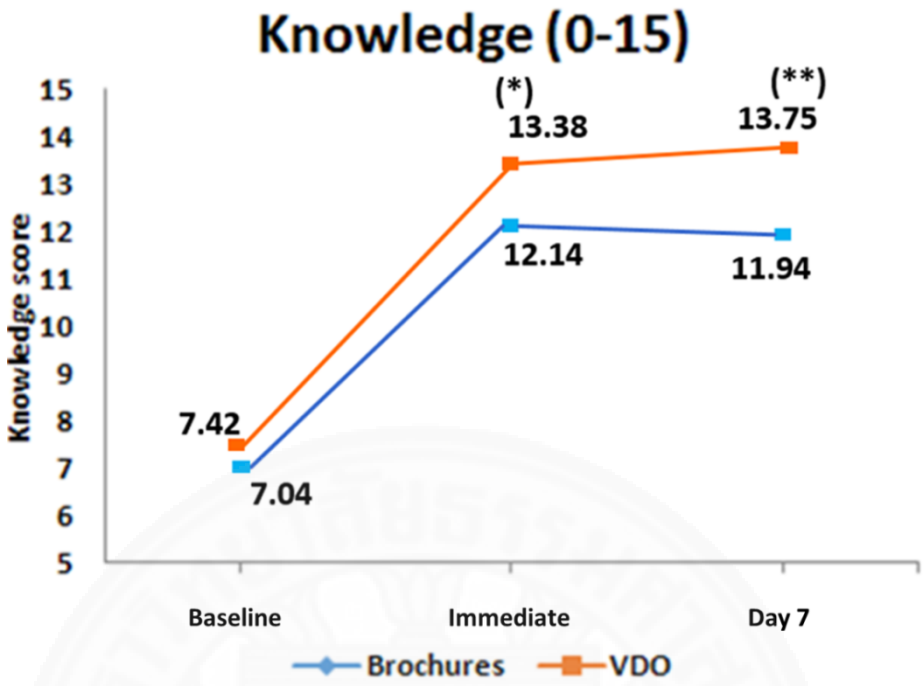

Figure 7.1 Overall mean knowledge score comparison between video and pamphlet

Note: (*) p=0.002 Comparison between video and pamphlet in post intervention, immediately

(**) p<0.001 Comparison between video and pamphlet in post intervention, Day 7

7.2.5 Post intervention differences comparison between video and pamphlet of knowledge question

Due to the baseline knowledge score in video and pamphlet showed almost statistically different in the question asked about "what is this condition" which the correct percentage in baseline of the video group was 17.3 while in pamphlet group was 32.7 (p=0.076) as shown in Table 7.7. Therefore all the questions were grouped into three groups to adjust the baseline and changed into continuous data as shown in Table 7.8. The first group named "What is it?" consisted of 6 questions; What is this condition?, Could this condition be a form of leprosy?, Is this condition exaggerated by exposure to psychological stress?, Is this condition lethal?, Is this condition related to an internal organ abnormality?, and Does this condition have a treatment?. The score of this group ranged from 0 to 6.

The second group named "Contagious" consisted of 4 questions; Is this condition contagious by touch?, Is this condition contagious by breath?, Is this condition

contagious by use of sharing?, and Is this condition contagious by having meal together?. The score of this group ranged from 0 to 4.

The third group named “Cause” consisted of 5 questions; Could this condition caused by poor hygiene?, Is this condition caused by specific food? Is this condition associated with immune system defect?, Is this condition hereditary?, and Could the cause of this condition seen in video unknown?. The score of this group ranged from 0 to 5.

Table 7.7 Comparison knowledge question between video and pamphlet before and after intervention

Question (% correct answer)	VDO (n=52)			p-value		Pamphlet (n=49)			p-value		p-value (VDO vs. pamphlet)		
	Baseline	Immediate	Day 7	Baseline vs. Immediate	Immediate vs. Day 7	Baseline	Immediate	Day 7	Baseline vs. Immediate	Immediate vs. Day 7	Baseline	Immediate	Day 7
1. What is this condition? (%Vitiligo)	17.3	100.0	92.3	<0.001*	0.046*	32.7	93.9	91.8	<0.001*	0.705	0.076	0.071	0.931
2. A leprosy (%No)	57.7	100.0	100.0	<0.001*	1.000	57.1	93.9	89.8	<0.001*	0.414	0.956	0.071	0.019*
3. A contagious disease by touch (%No)	67.3	100.0	100.0	<0.001*	1.000	55.1	93.9	98.0	<0.001*	0.317	0.210	0.071	0.303
4. A contagious disease by breath (%No)	73.1	100.0	100.0	<0.001*	1.000	59.2	95.9	95.9	<0.001*	1.000	0.142	0.143	0.143
5. A contagious disease by use of sharing (%No)	59.6	100.0	100.0	<0.001*	1.000	42.9	95.9	95.9	<0.001*	1.000	0.094	0.143	0.143
6. A contagious disease by eating together (%No)	67.3	100.0	100.0	<0.001*	1.000	61.2	93.9	87.8	0.001*	0.257	0.526	0.071	0.010*
7. Caused due to not keep clean (%No)	55.8	98.1	100.0	<0.001*	0.317	59.2	89.8	91.8	0.001*	0.705	0.730	0.080	0.036*
8. Caused by the intake of contaminated food (%No)	48.1	92.3	96.2	<0.001*	0.414	44.9	89.8	91.8	<0.001*	0.564	0.750	0.659	0.361
9. An immune disease (%Yes)	40.4	86.5	90.4	<0.001*	0.414	46.9	65.3	55.1	0.039*	0.166	0.509	0.013*	<0.001*
10. A hereditary disease (%Yes)	28.8	80.8	90.4	<0.001*	0.096	16.3	85.7	79.6	<0.001*	0.317	0.136	0.509	0.129
11. Cause is unknown (%Yes)	44.2	55.8	46.2	0.239	0.096	46.9	75.5	63.3	0.006*	0.157	0.786	0.038*	0.086
12. Stress can trigger (%Yes)	13.5	92.3	92.3	<0.001*	1.000	20.4	79.6	79.6	<0.001*	1.000	0.353	0.066	0.066
13. Life-threatening disease (%No)	80.8	100.0	94.2	0.002*	0.083	73.5	95.9	89.8	0.002*	0.083	0.384	0.143	0.412

Table 7.7 Comparison knowledge question between video and pamphlet before and after intervention (cont.)

Question (% correct answer)	VDO (n=52)			p-value		Pamphlet (n=49)			p-value		p-value (VDO vs. pamphlet)		
	Baseline	Immediate	Day 7	Baseline vs. Immediate	Immediate vs. Day 7	Baseline	Immediate	Day 7	Baseline vs. Immediate	Immediate vs. Day 7	Baseline	Immediate	Day 7
14. Associated with internal organs? (%No)	44.2	100.0	84.6	<0.001*	0.005*	49.0	81.6	83.7	0.001*	0.808	0.634	0.001*	0.897
15. It can be treated (%Yes)	44.2	94.2	88.5	<0.001*	0.180	38.8	55.1	59.2	0.088	0.617	0.580	<0.001*	0.001*

Note: Values presented as percentage(%). P-value corresponds to (w)Wilcoxon signed ranks test (within group) and (b)Mann-Whitney test (between group)

7.2.5.1 Video group

1. Baseline score: According to Table 7. 8, before the intervention test, the participants' answered to the question about the condition seen in video showed that participants answered correctly the most about the group questions of contagious. The average mean score was 2.67±1.5. In the group of questions about "What is it?" the mean score was 2.58±1.3. Lastly, the group of questions about "Cause" the participants could give the least corrected answer compared with other group questions (2.17±1.32).

2. Mean difference of Baseline to immediately after intervention. After the post immediate intervention of video group, the answers showed an increase in all group questions. As compared between post immediate intervention and baseline in Table 7.9, it was found that the most significantly improved score immediately after intervention from the baseline was a group question about the nature of the condition in video (3.29±1.32). Moderate mean difference of knowledge score reported that 1.96± 1.36 of the group question about the cause of this condition. The least mean difference of knowledge score was the group question about contagious which showed 1.33±1.5. Additionally, there were significant differences between the baseline and post immediate intervention for all group questions.

3. Mean difference of Immediately to Day 7 after intervention. After the post Day 7 intervention of video group compared with post immediate intervention, the answers were showed an ongoing increase in mean score of the group questions about cause (0.96±0.8) with no statistical significant ($p = 0.268$) whereas in the group question about the characteristic of disease showed a decreased mean score (-0.35±0.79) which there was statistically significant, $p = 0.003$. Additionally, it was reported a stable in group question of contagious (0 ± 0) but there was not statistically difference, $p = 1$.

7.2.5.2 Pamphlet group

1. Baseline: According to Table 7.8, before the intervention test, the mean score in the group question about the characteristic of the condition in video showed 2.71± 1.53. The group question of contagious reported the mean score of 2.18±1.65. Also, the group question about the cause reported the mean score of 2.14±1.26.

2. Mean difference of Baseline to immediately after intervention. After the post immediate intervention of pamphlet group, the answers showed an increase in all group questions statistically significant, $p<0.001$. As compared between post immediate intervention and baseline in Table 7.9, it was found the most difference of mean knowledge score questions after intervention immediately was that a group question about the nature of the condition in video (2.29 ± 2.14) which was as same as in video group. Moderate difference of mean knowledge score reported that 1.92 ± 1.85 of the group question about the cause of this condition. The least difference of mean attitude score was the group question about contagious which showed 1.62 ± 1.85.

3. Mean difference of Immediately to Day 7 after intervention. After the post Day 7 intervention of pamphlet group compared with post immediate intervention, the answers showed a decreased mean score in all group questions; cause group, characteristic of this condition group and contagious group (-0.24 ± 1.01, -0.06 ± 1.42, -0.02 ± 0.99 respectively) ($p = 0.036$, $p = 0.778$ and $p = 0.756$ respectively).

7.3.5.3 Video vs Pamphlet group

1. Baseline: There were not significantly different between the baseline of knowledge in video and pamphlet group in all group questions as shown in Table 7.8.

2. Mean difference of Baseline to immediately after intervention. As shown in Table 7.9, after the intervention immediately, although the mean score in video had more than pamphlet in all groups question, only two group of question about what is it and contagious which showed statistically difference ($p<0.001$, $p = 0.036$ respectively). Another group question about the cause of this condition did not show statistically difference, $p = 0.461$.

3. Mean difference of Immediately to Day 7 after intervention. After the education lasted for 7 days, comparison between the video and pamphlet, participant in video group had the score at Day 7 more than pamphlet group in all group of question. However, only the knowledge scores in video group in the group question about nature of this condition and contagious were more than pamphlet group statistically significant ($p = 0.007$ and $p = 0.005$ respectively). There were not statistically different in the group question about the cause ($p = 0.098$).

Table 7.8 Comparison knowledge score in three groups before and after intervention by VDO and pamphlet towards vitiligo

	VDO (n=52)			p-value		Pamphlet (n=49)			p-value		p-value (VDO vs. pamphlet)		
	Baseline	Immediate	Day 7	Baseline vs. Immediate	Immediate vs. Day 7	Baseline	Immediate	Day 7	Baseline vs. Immediate	Immediate vs. Day 7	Baseline	Immediate	Day 7
What is it? (0-6)	2.58 ± 1.3	5.87 ± 0.44	5.52 ± 0.9	<0.001*	0.003*	2.71 ± 1.53	5 ± 1.22	4.94 ± 1.38	<0.001*	0.778	0.682	<0.001*	0.007*
Contagious (0-4)	2.67 ± 1.5	4 ± 0	4 ± 0	<0.001*	1	2.18 ± 1.65	3.8 ± 0.82	3.78 ± 0.62	<0.001*	0.756	0.183	0.036*	0.005*
Cause (0-5)	2.17 ± 1.32	3.52 ± 0.9	4.23 ± 0.67	<0.001*	0.268	2.14 ± 1.26	3.35 ± 1.01	3.22 ± 0.87	<0.001*	<0.001*	0.989	0.461	0.098

Note: Values presented as mean ± SD. P-value corresponds to (w)Wilcoxon signed ranks test (within group) and (b)Mann-Whitney test (between group).

Table 7.9 Comparison of mean difference in knowledge score before and after intervention by VDO and pamphlet towards vitiligo

	VDO (n=52)			p-value		Pamphlet (n=49)			p-value		p-value (VDO vs. pamphlet)		
	Baseline	Baseline to Immediately	Immediately to Day 7	Baseline to Immediately	Immediately to Day 7	Baseline	Baseline to Immediately	Immediately to Day 7	Baseline to Immediately	Immediately to Day 7	Baseline	Baseline to Immediately	Immediately to Day 7
What is it? (0-6)	2.58 ± 1.3	3.29± 1.32	-0.35 ± 0.79	<0.001*	0.003*	2.71 ± 1.53	2.29± 2.14	-0.06± 1.42	<0.001*	0.778	0.682	<0.001*	0.007*
Contagious (0-4)	2.67 ± 1.5	1.33 ± 1.5	0 ± 0	<0.001*	1	2.18 ± 1.65	1.62± 1.85	-0.02± 0.99	<0.001*	0.756	0.183	0.036*	0.005*
Cause (0-5)	2.17 ± 1.32	1.96 ± 1.36	0.96 ± 0.8	<0.001*	0.268	2.14 ± 1.26	1.92± 1.85	-0.24± 1.01	<0.001*	0.036*	0.989	0.461	0.098

Note: Values presented as mean change ± SE and percent change of baseline P-value corresponds to [(w)]Wilcoxon signed ranks test (within group) and [(b)]Mann-Whitney test (between group).

7.3 Attitude part

7.3.1 Mean baseline attitude

The mean attitude score of this studied sample was 28.02 ± 4.45 (minimum = 1, maximum = 40) as shown in Table 7.10.

Table 7.10 Total score of baseline attitude questionnaire scores (1-40)

	N	Mean	SD	Median	Minimum	Maximum
Attitude scores (Scores 1-40)	101	28.02	4.45	29	10	39

7.3.2 Factors associated with attitude towards vitiligo

There was no statistically significant relationship between the attitude score and gender (p = 0.490). There was no statistically significant relationship between the attitude score and age (p = 0.978). There was no statistically significant relationship between the attitude score and marital status, education and occupation (p = 0.778, 0.122, p = 0.542). There was no statistically significant relationship between the attitude score and family occupation associated with healthcare workers (p = 0.481). For this study we had divided the income per month (Baht) into the following groups: 0-10,000, 10,001-50,000, 50,001-100,000 and >100,000. There was no statistically significant relationship between the attitude score and income per month (Baht) (p = 0.288). As shown in Table 7.11.

Table 7.11 Factors associated with attitude towards vitiligo

Demographic	**n**	**Attitude scores (0-40)**		
		Mean	**SD.**	**p-value**
Gender				
Male	14	28.79	3.93	0.490
Female	87	27.90	4.53	

Table 7.11 Factors associated with attitude towards vitiligo (cont.)

Demographic	n	Attitude scores (0-40)		
		Mean	SD.	p-value
Age				
18-30	51	27.96	4.75	0.978
31-50	47	28.11	4.21	
>50	3	27.67	4.04	
Marital status				
Single	52	28.31	4.55	0.778
Married	41	27.59	4.68	
Divorced	5	29.20	2.39	
Separated	3	27.00	1.00	
Education				
Elementary school or lower	2	24.50	0.71	0.122
High school	35	27.06	4.96	
University or higher	64	28.66	4.10	
Not sure	5	26.40	7.30	
Occupation				
Housewife	2	24.50	0.71	0.542
Manager	20	27.05	4.56	
Student	1	30.00	0	
Employee	2	26.50	0.71	
Retired	76	28.38	4.50	
Family occupation associated with Healthcare worker				
Yes	12	29.17	2.98	0.481
No	84	27.95	4.44	
Not sure	5	26.40	7.30	

Table 7.11 Factors associated with attitude towards vitiligo (cont.)

Demographic	n	Attitude scores (0-40)		
		Mean	SD.	p-value
Income per month				
0 – 10,000	2	22.00	.00	0.288
10,000 – 50,000	70	28.20	4.81	
50,001 – 100,000	20	28.05	3.76	
>100,000	9	27.89	2.26	

Note: Values presented as frequency (%). P-value corresponds to ANOVA test.

7.3.3 Baseline attitude scores

Table 7.12 revealed the mean scores for participants' attitudes towards vitiligo patients. The mean score of participants asked if they would be happy to live with the sufferer as husband/wife was the highest (4.03 ± 0.71), followed by those who would be willing to marry a sufferer (3.93 ± 0.76). However, it was shown that the lowest mean score for attitude was given for whether they would date the person in the video if they liked him/her but had just seen the lesions on both hands (3.08 ± 0.80). Shaking hands and accepting food prepared by the sufferer also received moderately low scores (3.18 ± 0.75, 3.19 ± 0.89). Slightly higher attitude scores were given for being served by a sufferer (3.51 ± 0.80), sharing food (3.52 ± 0.82), and for hiring the person in the video (3.57 ± 0.85).

Table 7.12 Baseline Attitude questionnaire scores (Scores 1-5)

Questionnaire	Mean
1. Would you mind shaking hands with the person in the video?	3.18 ± 0.75
2. Would you mind having a meal prepared by the person in video?	3.19 ± 0.89
3. Would you mind being served by the person in the video?	3.51 ± 0.80
4. Would you mind sharing food with the person in the video?	3.52 ± 0.82
5. As an employer, would you mind hiring the person in the video?	3.57 ± 0.85

Table 7.12 Baseline Attitude questionnaire scores (Scores 1-5) (cont.)

Questionnaire	Mean
6. As a woman/man, would you mind dating the person in the video?	3.08 ± 0.80
7. As a girlfriend/boyfriend, would you mind getting married to the person in the video?	3.93 ± 0.76
8. As a husband/wife, would you mind living together?	4.03 ± 0.71

7.3.4 Overall attitude score comparison between video and pamphlet

There was both no statistically significant difference in mean baseline attitude scores towards vitiligo between pamphlet (27.94 ± 4.65) and video (28.10 ± 4.29) groups with p = 0.860 as shown in Table 7.13. However, a significant different was found in post intervention, day 7 comparing between pamphlet and video ($p < 0.001$).

Although there were a statistically significance in the mean difference between baseline and post immediate intervention, within-group analysis of pamphlet (5.37 ± 5.30) and video group (6.10 ± 5.37) ($p<0.001$ and $p<0.001$ respectively), comparing between-group analyses revealed that there were no significant difference ($p=0.495$). Mean difference between post immediate intervention and day 7, within-group analysis of pamphlet (-0.94 ± 5.13) and video (1.62 ± 5.19) reported statistically difference in video group ($p = 0.029$) but not in pamphlet group ($p = 0.206$). Additionally, mean difference between post immediate intervention and day 7, between-group analysis showed statistically difference ($p = 0.015$) as shown in Table 7.13 and Figure 7.2.

Table 7.13 Comparison of Attitude scores at baseline, post intervention, immediately and post intervention, Day 7. (Scores 1-40)

Score	Pamphlets (n = 49)		VDO (n = 52)		p-value(b)
	Mean	SD.	Mean	SD.	
Baseline	27.94	4.65	28.10	4.29	0.860
Post intervention, Immediately	33.31	4.27	34.19	4.56	0.317
Post intervention, Day 7	32.37	5.16	35.81	4.01	<0.001*

Table 7.13 Comparison of Attitude scores at baseline, post intervention, immediately and post intervention, Day 7. (Scores 1-40) (cont.)

Score	Pamphlets (n = 49)		VDO (n = 52)		p-value(b)
	Mean	SD.	Mean	SD.	
Baseline to Immediately After intervention, Mean difference	5.37	5.30	6.10	5.37	0.495
p-value(w)	<0.001*		<0.001*		
Immediately to Day 7 After intervention, Mean difference	-0.94	5.13	1.62	5.19	0.015*
p-value(w)	0.206		0.029*		
Baseline to Day 7 After intervention, Mean difference	4.43	7.33	7.71	6.30	0.017*
p-value(w)	<0.001*		<0.001*		

None: Values presented as mean ± SD. P-value corresponds to [b] Independent t-test and [w] Paired t test. (*) Significant p<0.05

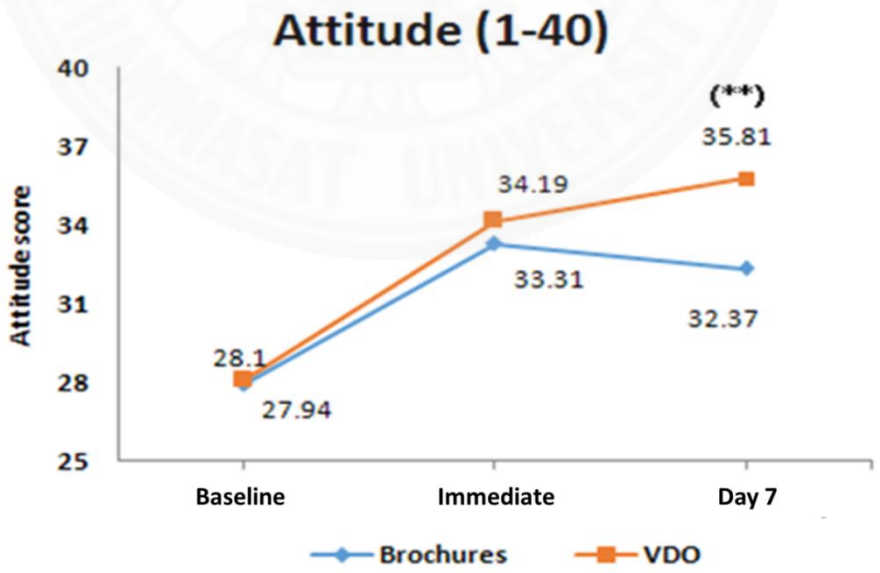

Figure 7.2 Overall mean attitude score comparison between video and pamphlet

Note: (**) p<0.001 Comparison between video and pamphlet in Post intervention, Day 7

7.3.5 Post intervention difference comparison between video and pamphlet of attitude question

7.3.5.1 Video group

1. Baseline score: According to Table 7. 14, before the intervention test, the participants' answers to the test pertaining to attitude toward vitiligo showed that most participants as a boyfriend or girl would accept continuing to date with the person in video (4.08 ± 0.62) and would be pleasure to live together with their couple even if he/she would have been like the person in video (4.15±0.64). The study also revealed that in other questions the participant would moderately accept to hire as an employer (3. 58±0. 89), to be served by (3. 48±0. 8), to have meal with (3.44±0.92), to have food prepared by (3.19 ± 0.89) and to shake hand with the person in video (3.12 ±0.68). However, the question which the participant tended to have the least acceptance would be to date with (3.06±0.7).

Table 7.14 Comparison attitude questions between video and pamphlet before and after intervention

	VDO (n=52)			p-value		Pamphlet (n=49)			p-value		p-value (VDO vs. pamphlet)		
	Baseline	**Immediate**	**Day 7**	**Baseline vs. Immediate**	**Immediate vs. Day 7**	**Baseline**	**Immediate**	**Day 7**	**Baseline vs. Immediate**	**Immediate vs. Day 7**	**Baseline**	**Immediate**	**Day 7**
1. Shake hands	3.12 ± 0.68	4.33 ± 0.65	4.6 ± 0.6	<0.001*	0.012*	3.24 ± 0.83	4.33 ± 0.59	4.08 ± 0.84	<0.001*	0.097	0.258	0.897	<0.001*
2. Having meal with	3.44 ± 0.92	4.35 ± 0.65	4.65 ± 0.59	<0.001*	0.012*	3.61 ± 0.7	4.39 ± 0.57	4.2 ± 0.76	<0.001*	0.163	0.466	0.878	<0.001*
3. Pleasure being served	3.48 ± 0.8	4.29 ± 0.72	4.54 ± 0.7	<0.001*	0.035*	3.55 ± 0.79	4.29 ± 0.68	4.14 ± 0.68	<0.001*	0.258	0.707	0.876	0.001*
4. Pleasure to have food prepared by	3.19 ± 0.84	4.27 ± 0.72	4.5 ± 0.73	<0.001*	0.035*	3.18 ± 0.95	4.24 ± 0.8	4.06 ± 0.8	<0.001*	0.160	0.988	0.982	0.001*
5. Pleasure to hire as an employer	3.58 ± 0.89	4.29 ± 0.7	4.56 ± 0.73	<0.001*	0.025*	3.57 ± 0.82	4.24 ± 0.75	4.31 ± 0.71	<0.001*	0.592	0.907	0.825	0.028*
6. Pleasure to dating with	3.06 ± 0.7	3.85 ± 0.85	3.88 ± 0.78	<0.001*	0.783	3.1 ± 0.9	3.63 ± 0.78	3.59 ± 0.73	<0.001*	0.721	0.761	0.137	0.032*
7. Pleasure to continue dating with	4.08 ± 0.62	4.37 ± 0.6	4.58 ± 0.54	0.014*	0.025*	3.78 ± 0.87	4.04 ± 0.82	3.96 ± 0.89	0.004*	0.640	0.080	0.038	<0.001*
8. Affected to marital life	4.15 ± 0.64	4.46 ± 0.61	4.5 ± 0.73	0.005*	0.581	3.9 ± 0.77	4.14 ± 0.87	4.02 ± 0.85	<0.001*	0.330	0.076	0.054	0.001*

Note: Values presented as mean ± SD. P-value corresponds to [(w)]Wilcoxon signed ranks test (within group) and [(b)]Mann-Whitney test (between group).

2. Mean difference of Baseline to Immediately after intervention. After the post immediate intervention of video group, the answers showed an increase in all questions. Additionally, there were significant differences between the baseline and post immediate intervention for all questions as shown in Table 7.15.

As compared between post immediate intervention and baseline in Table 7.15, it was found the most difference of mean attitude score questions after intervention was that a question of pleasure to shake hand (1.21±0.89), pleasure to have food prepared (1.08±1.04), pleasure to having meal (0.9±1.03) and pleasure to be served by the person in video (0.81±0.97), respectively. Moderate difference of mean attitude score reported that 0.79 ± 0.96 of pleasure to start dating and 0.71±0.87 of pleasure to employ the person in video. The least difference of mean attitude score was the question about pleasure to continue dating with the person in video, 0.29±0.67 and the condition of the person in video affected to marital status, 0.31±0.51.

3. Mean difference of Immediately to Day 7 after intervention. After the post Day 7 intervention of video group compared with post immediate intervention, the answers still showed an ongoing increase in all questions. The average mean difference score ranged between 0.2-0.3. The mean difference of question which showed statistically significant namely, a pleasure to shake hand (0.27± 0.74), a pleasure to having meal (0.31 ± 0.83), a pleasure being served with (0.25 ± 0.81), a pleasure to have food prepared by (0.23 ± 0.76), a pleasure to hire as an employer (0.27 ± 0.82) and a pleasure to continue dating with (0.04 ± 0.82). However, a difference of mean score in these two questions; pleasure to start dating (0.04 ± 0.82) and affected to marital life (0.04 ± 0.91) did not show statistically different as shown in Table 7.15.

7.3.5.2 Pamphlet group

1. Baseline: According to Table 7.14, before the intervention test, the subject would be the most be pleasure in living with the person in video as a husband or wife (3.9±0.77) and to be pleasure to continue dating as a boyfriend or girlfriend which the top two out of eight question in acceptance was the same as the top two in video group. Also, the least acceptance would to be pleasure start dating with the person in video (3.1±0.9).

2. Mean difference of Baseline to Immediately after intervention. Before the intervention test, the participants' answers to the test pertaining to attitude

toward vitiligo as written before. After the post immediate intervention of pamphlet group, the answers showed an increase in all questions as same as in video group. Moreover, there were significant differences between the baseline and post immediate intervention for all questions as shown in Table 7.15

Comparison between post immediate intervention and baseline in Table 7.15, it was found that the top four difference of mean scores out of eight questions was exactly the same top four questions of video which were a question of pleasure to shake hand (1.08 ± 1.04), pleasure to have food prepared (1.06 ± 1.23), pleasure to having meal (0.78 ± 0.82) and pleasure to be served by the person in video (0.73 ± 0.88), respectively. Moderate difference of attitude score reported that 0.53 ± 1.08 of pleasure to start dating and 0.67 ± 0.99 of pleasure to employ the person in video which was the same moderate difference of mean attitude as in video. The least difference of mean attitude score as same as in video group was the question about pleasure to continue dating with the person in video, 0.27 ± 0.73 and the condition of the person in video affected to marital status, 0.24 ± 0.83.

3. Mean difference of Immediately to Day 7 after intervention. After the post Day 7 intervention of pamphlet group compared with post immediate intervention, the answers showed a decrease in all questions except the question about a pleasure to hire as an employer (0.06 ± 0.8) as shown in Table 7.15. However, there were not any statistically different in all questions.

7.3.5.2 Video vs Pamphlet group

1. Baseline: There were not significantly different between the baseline of attitude in video and pamphlet group in all questions as shown in Table 7.14.

2. Mean increased score of Immediate vs. Baseline: As shown in Table 7.15, after the intervention immediately, the increased mean score about the attitude increased in both group, but the significant different was not observed in any questions ($p > 0.05$) except the question about a pleasure to continue dating with the person in video ($p = 0.038$).

3. Mean increased score of Day 7 and Immediate: After the education lasted for 7 days, comparison between the different mean increased score in attitude towards vitiligo patients, the attitude score in video group increased persistently

until Day 7, whereas the attitude score of participant in pamphlet group decreased from the post immediate intervention with statistically differences in all questions ($p<0.05$).

Table 7.15 Comparison mean difference of attitude scores before and after intervention by video and pamphlet

	VDO (n=52)			p-value		Pamphlet (n=49)			p-value		p-value (VDO vs. pamphlet)		
	Baseline	**Baseline vs Immediately**	**Immediately vs Day 7**	**Baseline vs Immediately**	**Immediately vs Day 7**	**Baseline**	**Baseline vs Immediately**	**Immediately vs Day 7**	**Baseline vs Immediately**	**Immediately vs Day 7**	**Baseline**	**Baseline vs Immediately**	**Immediately vs Day 7**
1. Shake hands	3.12 ± 0.68	1.21 ± 0.89	0.27 ± 0.74	<0.001*	0.012*	3.24 ± 0.83	1.08 ± 1.04	-0.24 ± 0.99	<0.001*	0.097	0.258	0.897	<0.001*
2. Having meal with	3.44 ± 0.92	0.9 ± 1.03	0.31 ± 0.83	<0.001*	0.012*	3.61 ± 0.7	0.78 ± 0.82	-0.18 ± 0.88	<0.001*	0.163	0.466	0.878	<0.001*
3. Pleasure being served with	3.48 ± 0.8	0.81 ± 0.97	0.25 ± 0.81	<0.001*	0.035*	3.55 ± 0.79	0.73 ± 0.88	-0.14 ± 0.89	<0.001*	0.258	0.707	0.876	0.001*
4. Pleasure to have food prepared by	3.19 ± 0.84	1.08 ± 1.04	0.23 ± 0.76	<0.001*	0.035*	3.18 ± 0.95	1.06 ± 1.23	-0.18 ± 0.88	<0.001*	0.160	0.988	0.982	0.001*
5. Pleasure to hire as an employer	3.58 ± 0.89	0.71 ± 0.87	0.27 ± 0.82	<0.001*	0.025*	3.57 ± 0.82	0.67 ± 0.99	0.06 ± 0.8	<0.001*	0.592	0.907	0.825	0.028*
6. Pleasure to start dating with	3.06 ± 0.7	0.79 ± 0.96	0.04 ± 0.82	<0.001*	0.783	3.1 ± 0.9	0.53 ± 1.08	-0.04 ± 0.89	<0.001*	0.721	0.761	0.137	0.032*

Table 7.15 Comparison mean difference of attitude scores before and after intervention by video and pamphlet (cont.)

	VDO (n=52)			p-value		Pamphlet (n=49)			p-value		p-value (VDO vs. pamphlet)		
	Baseline	Baseline vs Immediately	Immediately vs Day 7	Baseline vs Immediately	Immediately vs Day 7	Baseline	Baseline vs Immediately	Immediately vs Day 7	Baseline vs Immediately	Immediately vs Day 7	Baseline	Baseline vs Immediately	Immediately vs Day 7
7. Pleasure to continue dating with	4.08 ± 0.62	0.29 ± 0.67	0.21 ± 0.67	0.014*	0.025*	3.78 ± 0.87	0.27 ± 0.73	-0.08 ± 0.95	0.004*	0.640	0.080	0.038*	<0.001*
8. Affected to marital life	4.15 ± 0.64	0.31 ± 0.51	0.04 ± 0.91	0.005*	0.581	3.9 ± 0.77	0.24 ± 0.83	-0.12 ± 0.95	<0.001*	0.330	0.076	0.054	0.001*

Note: Values presented as mean ± SD. P-value corresponds to [w]Wilcoxon signed ranks test (within group) and [b]Mann-Whitney test (between group

7.4 Relationship of knowledge and attitude

As Table 7.16 revealed, those with sufficient knowledge tended to have more positive attitudes towards vitiligo. This association was statistically significant, P<0.004

Table 7.16 Relationship of knowledge and attitude

Attitude toward vitiligo	Vitiligo knowledge		p-value
	Insufficient N (%)	Sufficient N (%)	
Negative (n=40)	22 (55%)	18 (45%)	0.004*
Positive (n=61)	16 (26.2%)	45 (73.8%)	

Chi – square test.

CHAPTER 8
DISCUSSION AND RECOMMENDATIONS

8.1 Discussion

Vitiligo is a common depigment skin disorder in which white patch appear on the skin (131). The cause is still unknown but it is proposed that it might be the result from an autoimmune process (132-135). The prevalence of vitiligo varied to each area ranges between 0.5-2.0% (136). Additionally, the prevalence of childhood/ adolescent and adult vitiligo is not different (6).

Although there are various treatment, vitiligo is still no curative treatment. Because vitiligo are often visible to others, it significantly affect patients' quality of life (80, 81). Especially, in patients who had an active social life aged 20-59 years would associate with a heavy functional burden (137). People living with vitiligo may stigmatize form invasive stares and negative interaction which would bring the difficulty and uncomfortable in daily life.

In previous studies of perceptions, knowledges and attitudes of vitiligo patient had demonstrated the public's reaction towards them, the feeling of depression, isolation, stigmatization and the impact of their daily life (104, 105, 138, 139).

8.1.1 Part 1: Baseline knowledge

Only few studies revealed public knowledge and attitude towards vitiligo patients. This study is the first study in Southeast Asia which revealed about a general population's knowledge and attitude which was different from Europe or Western Asia (Arab) cultures and also skin types.

This study showed lack of knowledge and attitude among the general population towards vitiligo. This is extremely important because the public understanding and acceptance is one of the most significant reasons which bring to depression, guilt, humiliation, and isolation experienced by vitiligo patients. More than half of vitiligo patients felt depressed and anxious about their illnesses (105).

In this study, it was found that only about one-fourth of the participants knew that the person in video had vitiligo. The least score question was about realized that this condition exaggerated by exposure of psychological stress. For the causes of vitiligo, less than one-fourth of our subjects recognized this condition as an hereditary matter while around 40% of Saudi people realized it as genetic etiology (100).

Not more than 60% of the subjects perceived or were not sure that this condition could transmit by sharing items, touch, having meal together, and airborne transmission. This could explain the isolation experienced by vitiligo patients. Also, fewer than 60% of our study perceived that some specific food or poor hygiene induced this status. As shown in Table 8.1 and Table 8.2, previous studies (100, 140, 141) found lack of hygiene were associated with this condition around 70-88%. Alghamdi et al. reported that up to 80% of the respondents identified vitiligo as a non-infectious disease (100). This corresponded to the study by Asati et al. that up to 90% of people acknowledged vitiligo not contagious by sharing, touching or having meal together (141). In conclusion, participants in this study found less percentage of correct answers than the other studies showed in Table 8.1 and Table 8.2. This can be inferred that these studies which have simply performed the written word "vitiligo" in questionnaires might not have generated accurate results if study participants had not known exactly yet what condition was from video visualization.

However, about 60% of participants knew that this condition was not leprosy which the percentage of correct answer in this study were about double times compared with the study in India (141) as shown in Table 8.3. This could be explained that in some areas in India vitiligo has been commonly mistaken for leprosy because vitiligo had been mistaken and treated for leprosy. Beliefs about illness have been linked to psychological adjustment and these beliefs may be influenced by cultural factors. The high level of stigmatization in the Nigerian African have been related with the confusion between leprosy and vitiligo disease(118). Also, in Arab vitiligo was translated incorrectly as "Baras" which the equivalent for this word is "Leprosy". The meaning of "Baras" is white shinny as the early stage of leprosy or tuberculoid form (142). The only question which more than 70% of the participants knew was that it is not lethal.

Considering in relationship found between knowledge scores and the factors such as gender, age, marital status, education, occupation and income, there was no significant association found in our study. However, Alghamdi et al revealed that misconceptions related to the cause of vitiligo were more prevalent in younger people and those of lower education(100).

Table 8.1 Comparison of correct answer (%) in contagious topic with other studies in questionnaire survey

Journal	Country	Year	N	Contagious Correct answer (%)			
				Sharing thing (%)	Touch (%)	Having meal together (%)	Breath (%)
1. Public perceptions and attitudes toward vitiligo (Alghamdi et al.)	Saudi Arabia	2012	924	79.6			
2. Acknowledging popular misconceptions about vitiligo in western Saudi Arabia (Fatani et al.)	Saudi Arabia	2016	423	70.7			
3. A hospital-based study on knowledge and attitude related to vitiligo among adults visiting a tertiary health facility of central India (Asati et al.)	India	2016	700	88.7	88.3	91.7	-
4. Our study	Thailand	2017	101	51.5	61.4	64.4	66.3

Table 8.2 Comparison of correct answer (%) in cause of vitiligo topic with other studies in questionnaire survey

Journal	Country	Year	N	Cause Correct answer (%)				
				Hereditary (%)	Immune (%)	Unknown (%)	Not from Specific food (%)	Not from Poor hygiene (%)
1. Public perceptions and attitudes toward vitiligo (Alghamdi et al.)	Saudi Arabia	2012	924	40.5	41.2	-	69.5	77.5
2. Acknowledging popular misconceptions about vitiligo in western Saudi Arabia (Fatani et al.)	Saudi Arabia	2016	423	36.4	49.4	-	52.5	-
3. A hospital-based study on knowledge and attitude related to vitiligo among adults visiting a tertiary health facility of central India (Asati et al.)	India	2016	700	11.4	-	-	78	-
4. Our study	Thailand	2017	101	22.8	43.6	45.5	46.5	57.4

Table 8.3 Comparison of correct answer (%) in characteristic of vitiligo with other studies in questionnaire survey

Journal	Country	Year	N	What is it ? Correct answer (%)				
				What is this condition? (%)	Not Leprosy (%)	Not Life-threatening (%)	Not Associated with internal organ (%)	It can be treated (%)
1. Public perceptions and attitudes toward vitiligo (Alghamdi et al.)	Saudi Arabia	2012	924	-	-	-	-	-
2. Acknowledging popular misconceptions about vitiligo in western Saudi Arabia (Fatani et al.)	Saudi Arabia	2016	423	-	-	62.9	-	57.9
3. A hospital-based study on knowledge and attitude related to vitiligo among adults visiting a tertiary health facility of central India (Asati et al.)	India	2016	700	-	26.9	72.4	-	68.9
4. Our study	Thailand	2017	101	24.8	57.4	77.2	46.5	41.6

8.1.2 Part 1: Baseline attitude

In this survey, this study also focused on the attitudes of the general public towards vitiligo. The presence of vitiligo may act as a barrier, preventing patients from socializing and may hinder relationships such as marriage. This study sought in-depth analysis of relationships between males and females since the first step of dating, through to the step of marriage, and further steps after marriage. It was found that the general population had difficulty in accepting the idea of dating vitiligo patients. This result is in agreement with what had been reported by Fatani et al.(140). This finding provides an explanation for the common difficulties that vitiligo patients experience when attempting to start relationships, which correlate with the findings of Parsad et al. (91) , Sampongna et al. (114) and Matto et al.(92). This could be explain due to the individual in the study tend to focus more on physical appearances in our society. Another study revealed that it had become the sexual problem because vitiligo lesion was uncomfortable during sexual intercourse(143). Also, the social reason is afraid of staring at couple. Some believed that vitiligo could spread to others in the family members as a contagious disease. Lastly, they would be fear to have children with because it is believed that it is inherited. These reasons had been common misunderstanding reasons in many cultures (100, 143).

However, as a girlfriend/boyfriend or as a husband/wife, the results showed a more positive attitude towards marrying vitiligo patients, and so this did not cause problems in married life. The reason of these could be a couple spend time together for a while or longer enough to understand the nature of disease. Also, the physical appearance would not only reason to live with.

This study could not demonstrate significant association between gender, age, marital status, education, occupation, family occupation, and income with attitudes. Nevertheless, Alghamdi et al. showed that younger male with high income were less likely to marry vitiligo patients(100). Previous known vitiligo individuals (140) and health care workers (141)were found as significant factors for better attitudes.

In addition, it was found a relationship between attitudes and knowledge among participants. The participants who scored at or more than the median value would be considered to have sufficient knowledge were likely to have a more positive attitudes towards patients with this condition. This finding was similar to

previous study by Fatani et al. (140). The relationship about knowledge and attitude could be explained by the philosophy named In the Critique of Aesthetic Judgement, by Immanuel Kant (144) which explored the notion of beauty and how it associated to the human experience and comprehension. He argued that it was faculty of judgment that enabled us to have experience of beauty and grasped those experiences as part of a decision of beauty. Kant stated that beholding beauty was a subjective experience felt directly within the person's mind. It was said that human could pass the judgment immediately and without thinking by the reminiscence in the past. For example, if someone saw something beautiful, that one would feel a similar internal burst of pleasure immediately upon viewing the object by the foundation of experience. So the positive attitude towards vitiligo patient might be come from good basic knowledge in vitiligo disease.

Therefore, it can be interpreted that it should be pay attention in public education to increase the knowledge about vitiligo disease and also to correct many of the misconceptions which would bring better attitude and a better understanding of this disease by the general population. This could result in a better social integration and adaptation for vitiligo patient

8.1.3 Part 2 (Video and Pamphlet, compared Immediate post intervention and post intervention Day 7)

This study revealed the efficacy of video compared with pamphlet educational intervention focused on the knowledge and attitudes of public towards vitiligo. A significant increase in mean knowledge score was revealed within-group analyses after immediate post intervention and post intervention day 7 both two groups (pamphlet and video education) while it was not the significant different in between video and pamphlet. These finding suggest that both video and pamphlet were beneficial equally in term of increased the knowledge about vitiligo. This could be explained that because of the exactly the same information in the script in video and the content in brochure leading to gain knowledge equally.

In comparison knowledge question group between video and pamphlet, it was revealed that mean difference between baseline to immediately after intervention in video showed more than in pamphlet group significantly in the group question about the nature of vitiligo, whereas pamphlet group showed the mean difference more than video group in the group question about contagious. However, at immediately to

day 7 after intervention, video had mean difference more than pamphlet group in the group question about the nature of vitiligo and contagious significantly. Nevertheless, it was not revealed statistically significant of mean difference between video and pamphlet in the group question about the cause of disease at baseline to immediately and immediately to day 7 after intervention. These could be interpreted that video would be more comprehensive than pamphlet in improve participants' recall of information about the nature of disease and contagious.

In attitude part, the topic about daily life activities such as shake hands, having meal with, being serve food by, have food prepared by vitiligo patient reported the most increasing score after post intervention, immediately in both video and pamphlet group while the topic about relationship such as start dating with, continue dating or affected marital life reveal the least increasing score after post intervention, immediately. It could be implied that it was easy to improve knowledge leading to change better attitude about the daily life activity but it was not easy to change attitude about the relationship.

At immediate post intervention and post intervention day 7, subjects in the video group showed the significantly better attitude than pamphlet group at day 7 in all questions. The attitude score in pamphlet group tended to drop comparing the score from immediate post intervention and post intervention day 7, however in video group was found increasing of attitude score which mean the participants changed their negative attitude to a positive one in all aspects of question including daily activity with vitiligo patient such as shaking hand, having meal with or prepared by, being served by, hiring as a employer and in all steps of relationship. Interestingly, all the aspect of attitude including daily activities and also in relationship with vitiligo patient showed better long-lasting affect in video than pamphlet which can be seen in increasing mean score of day 7 compared with immediate post intervention.

These results could be explained that video education relieved the participants' fear of vitiligo patient, and also enabling them to create friendly attitudes toward vitiligo people. Moreover, the reason that video group was found persistent increasing of attitude score until day 7 but it was not revealed in pamphlet group was that video is an audio-visual intervention showing real-time picture, audio, tone and mood which the viewer could comprehend the given information and have the emotion

during watching the video. From the research about attitudes, it was reported that attitudes and attitude objects are functions of affective and cognitive components (145). Therefore, by triggering an affective or emotional node, attitude change could be possible, though affective and cognitive components tend to be linked together (146).

Importantly, this is the key reason which emotions can be used to induce attitude change in a number of ways. Emotion is the driving force behind behavior and attitudes. Therefore, emotion is a significant role in how other people influence and persuade to change attitudes and behavior (147). The best to try and change an attitude depend on a type of attitude. In other words, a cognitively-based attitude would be most likely to be changed through the use of logical arguments. An affectively-based attitude would possible changed through the peripheral route to persuasion, such as emotions (148). If the participants in this study had a cognitively-based attitude, they would be pleasure to shake hand, having meal with or being served with vitiligo patient due to they understand that vitiligo is not a contagious disease and cannot infected by anyway. On the other hand, if the participants had an affectively-based attitude, they might change their mind to start dating with vitiligo patient because they were appealed by sympathetic emotion towards vitiligo patient. Furthermore, to change attitudes it is needed to work on individually and the environment each person is living in.

This process about changing attitude may take a long time especially in affective-based attitude because it is not something people have to learn but it is something people have to deliver. Also, it could be the reason about long lasting efficacy why participants in video group keep the attitude score rising up until day 7 that because the emotion have still existed but not in the pamphlet group. There are also a systemic review and meta-analysis that the result was similar to this study reviewed audio-visual interventions for promoting informed consent for invasive healthcare procedures in a three period of time; immediate < 1 day, intermediate 1-14 days and late > 14 days. The conclusion of this study showed that audio-visual interventions were revealed to improve recall information in the majority of the studies better than a written information sheet. The author explained that was because audio-visual interventions improved comprehension whereas a written information sheet did not (155).

This result in changing attitude is similar to the results revealed in other studies about HIV/AIDS educational intervention in Ukraine, Nigeria and China (149-

151). It can be concluded that video education was shown to superior to pamphlet in improvement of the attitude towards vitiligo.

Many studies attribute the low efficacy of traditional education. For example, educational interventions promoting skin self-examinations for squamous cell carcinoma detection in kidney transplant recipients and sun-protective behaviors and in general population have been reveal to be greatly effective by using written media such as patient pamphlets (152, 153). Moreover, number of studies have addressed the effectiveness of media-based intervention such as portable video device or mobile web application (154-156). Also, the literature comparing using video and pamphlet concluded that the use of a video may enhance patient satisfaction and maximize information (157). However, neither aid determining both with the knowledge and attitudes of general population towards vitiligo patients and neither was evaluated through a randomized controlled trial (RCT).

There are many advantages and disadvantages of this study. First of all, this is the first research using a brief video introduction showing a real-life situation of vitiligo patient and allowed the participants to answer the questions about the person in the video instead of writing the word "vitiligo" in the questionnaire. Moreover, it is first study evaluating knowledge and attitudes to vitiligo patients in Asian population compared giving the information between video and pamphlet and evaluated participant's recall of information. However, the disadvantages of this study is a small sample size of the subjects and it was collected the data by using only one place. Lastly, no long term followed up in this study.

8.2 Recommendations

8.2.1 Future Research

Later research could focus on long-term on knowledge and attitude. Moreover, patient satisfaction and information gain should be assessed in future studies. Lastly, to evaluate the economic benefit of the different methods, a cost-utility analysis would be gainful.

8.2.2 Application

Encouraging in use of video education by all means for conveying vitiligo right information to the public, especially in the misconception that it is an immune disease which is not infected to other people and it can be treated by various treatment. This would be an important steps to bring better attitude in daily activity such as shaking hand, having meal together including working in the same place that would lead to start the good relationship with vitiligo patient.

8.3 Conclusion

In summary, this study suggest that the use of informational content in video based education is more effective and beneficial than pamphlet in vitiligo education to encourage improving the knowledge and also changing attitude towards vitiligo patients. Easy to understand, accessibility, and audio-visual appeal are the main benefits of video-based education. Video education will be more successful in strategies because it improve participant's recall of information which would bring to long-term better attitude towards vitiligo patients. Among misunderstandings and negative attitudes about vitiligo, education will clarify some false perceptions and bring better social integration and adaptation for vitiligo patients.

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APPENDICES

เลขที่.....

ชื่อ.....นามสกุล.....

วันที่.....

แบบสอบถาม

โปรดทำเครื่องหมาย ✖ ลงใน ☐

ตอนที่ 1 ข้อมูลส่วนตัว

1.เพศ ☐ 1. ชาย ☐ 2. หญิง

2.อายุ……ปี

3.สถานภาพสมรส

☐ 1. โสด/ยังไม่เคยแต่งงาน ☐ 3. หม้าย

☐ 2. แต่งงานอยู่ด้วยกันฉันสามีภรรยา ☐ 4. แยกกันอยู่

4.ระดับการศึกษาที่สำเร็จ

☐ 1. ไม่ได้เรียน - ประถมศึกษา

☐ 2. มัธยมศึกษา/อาชีวศึกษาหรือเทียบเท่า

☐ 3. ปริญญาตรีขึ้นไป

5.อาชีพและตำแหน่งปัจจุบัน (หากเกษียณ ให้ระบุ อาชีพ และตำแหน่งก่อนเกษียณ หรือว่างงาน หากยังไม่เคยมีอาชีพให้ระบุว่าไม่มี)

☐ 1. แม่บ้าน/พ่อบ้าน ☐ 5. ค้าขาย

☐ 2. รับจ้างทั่วไป ☐ 6. เกษตรกรรม

☐ 3. รับราชการ ☐ 7. เจ้าหน้าที่สาธารณสุข

☐ 4. นักเรียน/นักศึกษา โปรดระบุคณะ…… ☐ 8. อื่น ๆ ระบุ……

6.ท่านมีคนในครอบครัว (พ่อ แม่ พี่น้อง) ประกอบอาชีพเกี่ยวกับสายสุขภาพ (แพทย์ พยาบาล เภสัช) หรือไม่

☐ 1. มี โปรดระบุ…… ☐ 2. ไม่มี ☐ 3. ไม่แน่ใจ

7.รายได้ต่อเดือนทั้งหมดของ***ตัวเอง***จากทุกแหล่งโดยยังไม่หักภาษีมีประมาณเท่าใด (บาท)

☐ 1. ไม่มีรายได้ ถึง < 10,000 ☐ 3. 50,001 – 100,000

☐ 2. 10,000 – 50,000 ☐ 4. >100,000

8.รายได้ต่อเดือนทั้งหมดของ***ครอบครัว***จากทุกแหล่งโดยยังไม่หักภาษีมีประมาณเท่าใด (บาท)

☐ 1. ไม่มีรายได้ ถึง < 10,000 ☐ 3. 50,001 – 100,000

☐ 2. 10,000 – 50,000 ☐ 4. >100,000

เลขที่.....

ชื่อ.....นามสกุล.....

วันที่.....

แบบทดสอบ

ข้อคำถาม	ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	ไม่แน่ใจหรือเฉยๆ	เห็นด้วย	เห็นด้วยอย่างยิ่ง
1.ท่านยินดีที่จะจับมือกับบุคคลในวีดีโอหรือไม่					

ข้อคำถาม	ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	ไม่แน่ใจหรือเฉยๆ	เห็นด้วย	เห็นด้วยอย่างยิ่ง
2.ท่านยินดีที่จะรับประทานอาหารร่วมกับคนในวีดีโอหรือไม่					

ข้อคำถาม	ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	ไม่แน่ใจหรือเฉยๆ	เห็นด้วย	เห็นด้วยอย่างยิ่ง
3.ท่านยินดีที่จะรับประทานอาหารในร้านที่มีคนในวีดีโอเป็นพนักงานเสริฟหรือไม่					

ข้อคำถาม	ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	ไม่แน่ใจหรือเฉยๆ	เห็นด้วย	เห็นด้วยอย่างยิ่ง
4.ท่านยินดีที่จะรับประทานอาหารในร้านที่มีคนในวีดีโอเป็นคนทำอาหารหรือไม่					

ข้อคำถาม	ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	ไม่แน่ใจหรือเฉยๆ	เห็นด้วย	เห็นด้วยอย่างยิ่ง
5.ถ้าท่านเป็นนายจ้าง ท่านยินดีรับคนในวีดีโอมาสมัครงานหรือไม่ ถ้าคุณสมบัติไม่แตกต่างจากผู้สมัครท่านอื่น					

ข้อคำถาม	ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	ไม่แน่ใจหรือเฉยๆ	เห็นด้วย	เห็นด้วยอย่างยิ่ง
6.ถ้าคนในวีดีโอมาชอบพอท่าน ท่านยินดีจะศึกษาดูใจหรือไม่					
	ถ้าท่านตอบ 3 ช่องนี้กรุณาตอบเหตุผล _____				

ข้อคำถาม	ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	ไม่แน่ใจหรือเฉยๆ	เห็นด้วย	เห็นด้วยอย่างยิ่ง
7.ถ้าท่านทราบว่าแฟนของท่านมีลักษณะสีผิวที่เปลี่ยนแปลงไปเป็นเหมือนคนในวีดีโอ ท่านยินดีจะคบต่อไปหรือไม่					

ข้อคำถาม	ไม่เห็นด้วยอย่างยิ่ง	ไม่เห็นด้วย	ไม่แน่ใจหรือเฉยๆ	เห็นด้วย	เห็นด้วยอย่างยิ่ง
8.ถ้าท่านทราบว่าคู่ครองของท่านมีลักษณะสีผิวที่เปลี่ยนแปลงไปเหมือนดังคนในวีดีโอท่านยินดีจะคบต่อไปหรือไม่					

ตอนที่ 3 : จงตอบคำถาม

1. ท่านทราบหรือไม่ว่าคนในวีดีโอเป็นอะไร

   ☐ ทราบ โปรดระบุ..... ☐ ไม่ทราบ ☐ ไม่แน่ใจ

2. คนในวีดีโอเป็น***โรคเรื้อน***หรือไม่

   ☐ ใช่ ☐ ไม่ใช่ ☐ ไม่แน่ใจ

3. คนในวีดีโอเป็น***โรคติดต่อ*** โดยสามารถติดต่อทาง***การสัมผัส***ใช่หรือไม่

   ☐ ใช่ ☐ ไม่ใช่ ☐ ไม่แน่ใจ

4. คนในวีดีโอเป็น***โรคติดต่อ*** โดยสามารถติดต่อทาง***การหายใจ***ใช่หรือไม่

   ☐ ใช่ ☐ ไม่ใช่ ☐ ไม่แน่ใจ

5. คนในวีดีโอเป็น***โรคติดต่อ*** โดยสามารถติดต่อโดย***การใช้สิ่งของร่วมกัน***ใช่หรือไม่

☐ ใช่ ☐ ไม่ใช่ ☐ ไม่แน่ใจ

6. คนในวีดีโอเป็น***โรคติดต่อ*** โดยสามารถติดต่อโดย***การรับประทานอาหารร่วมกัน***ใช่หรือไม่

☐ ใช่ ☐ ไม่ใช่ ☐ ไม่แน่ใจ

7. คนในวีดีโอเป็นโรคที่เกิดจาก***การไม่รักษาความสะอาด***ใช่หรือไม่

☐ ใช่ ☐ ไม่ใช่ ☐ ไม่แน่ใจ

8. คนในวีดีโอเป็นโรคที่เกิดจากมีการรับประทานอาหารที่มี***สารปนเปื้อนหรือของแสลง*** ใช่หรือไม่

☐ ใช่ ☐ ไม่ใช่ ☐ ไม่แน่ใจ

9. คนในวีดีโอมีความผิดปกติเกี่ยวข้องกับ***ระบบภูมิคุ้มกันของร่างกาย***ใช่หรือไม่

☐ ใช่ ☐ ไม่ใช่ ☐ ไม่แน่ใจ

10. คนในวีดีโอมีความผิดปกติเกี่ยวกับ***พันธุกรรม***ใช่หรือไม่

☐ ใช่ ☐ ไม่ใช่ ☐ ไม่แน่ใจ

11. คนในวีดีโอที่มีลักษณะสีผิวที่เปลี่ยนไป ยัง***ไม่ทราบสาเหตุที่แน่ชัด***ใช่หรือไม่

☐ ใช่ ☐ ไม่ใช่ ☐ ไม่แน่ใจ

12. โรคของคนในวีดีโอถูก***กระตุ้นโดยความเครียด***ได้ ใช่หรือไม่

☐ ใช่ ☐ ไม่ใช่ ☐ ไม่แน่ใจ

13. คนในวีดีโอเป็นโรคที่เป็น***อันตรายร้ายแรงถึงแก่ชีวิต***ใช่หรือไม่

☐ ใช่ ☐ ไม่ใช่ ☐ ไม่แน่ใจ

14. คนในวีดีโอเป็นโรคที่***เกี่ยวข้องกับอวัยวะภายใน***ใช่หรือไม่

☐ ใช่ ☐ ไม่ใช่ ☐ ไม่แน่ใจ

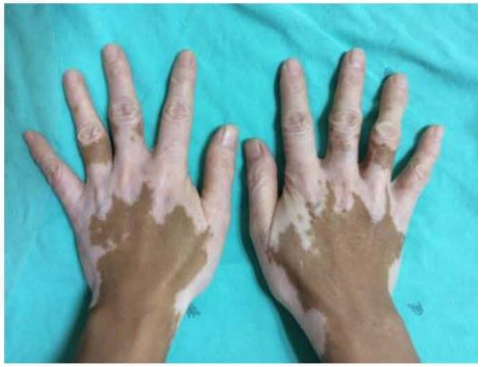
15. คนในวีดีโอเป็นโรคที่***สามารถรักษาได้***ใช่หรือไม่

☐ ใช่ ☐ ไม่ใช่ ☐ ไม่แน่ใจ

- ท่านมีคนในครอบครัวหรือญาติพี่น้องเป็นโรคด่างขาวหรือไม่

☐ 1. มี ☐ 2. ไม่มี ☐ 3. ไม่แน่ใจ

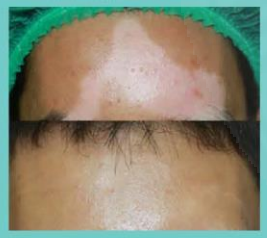
โรคด่างขาว
Vitiligo



การรักษา

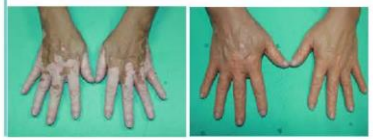
1. การใช้ยาทา
2. ยากิน
3. การฉายแสงยูวี

4. การใช้เลเซอร์
5. การผ่าตัดผิวหนังปกติมาแปะบนรอยโรคเพื่อปลูกถ่ายเซลล์เม็ดสี ซึ่งวิธีนี้มักใช้เมื่อรอยโรคสงบที่ไม่มีการลามอย่างน้อย 2 ปี



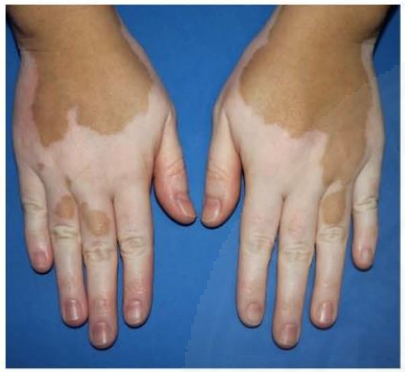
6. การทารองพื้นปกปิดรอยโรค

ก่อนและหลังทาเครื่องสำอางปกปิด



...ผู้ป่วยสามารถใช้ชีวิตประจำวันและรับประทานอาหารได้ตามปกติ..

"..ปัจจุบันยังไม่มีวิธีป้องกันโรคด่างขาวได้เพราะเป็นโรคที่ยังไม่ทราบสาเหตุการเกิดที่แน่ชัด อีกทั้งเป็นโรคที่เกี่ยวข้องทางพันธุกรรม ดังนั้นถ้ามีรอยโรคเกิดขึ้นควรรีบปรึกษาแพทย์ต่อไป.."

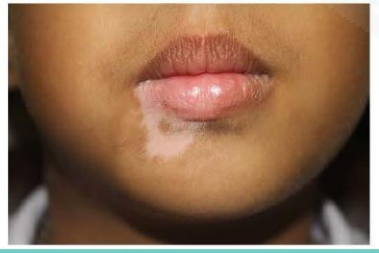


โรคด่างขาว

โรคด่างขาว เป็นโรคสีผิวผิดปกติ ที่เกิดจากการทำลายเซลล์สร้างเม็ดสีที่ผิวหนัง ทำให้เกิดเป็นรอยสีขาวขึ้น พบได้ 1-2% ของประชากร โดยสามารถพบได้ทุกเพศทุกวัย และมีความเกี่ยวข้องกับพันธุกรรม

อาการแสดง

อาการของโรคด่างขาว ผู้ป่วยจะมีรอยโรคสีขาวบริเวณผิวหนัง รอยโรคมีได้ตั้งแต่ขนาดเล็กจนถึงหลายเซนติเมตร ตำแหน่งที่พบบ่อย คือ ใบหน้า รอบปาก รอบดวงตา คอ มือ และเท้า อาจพบผมและขนเป็นสีขาวได้ด้วย



โรคด่างขาว

- *ไม่ใช่*โรคติดเชื้อ
- *ไม่ใช่*โรคติดต่อ
- *ไม่เป็น*อันตรายแก่ชีวิต
- สามารถรักษาได้ ไม่น่ากลัว

โรคด่างขาวอาจพบร่วมกับโรคอื่นๆ ได้แก่

1. โรคของต่อมไทรอยด์
2. โรคเบาหวาน
3. โรคเลือด
4. โรคผมร่วงเป็นหย่อม
5. โรคภูมิต้านทานผิดปกติ

โรคนี้ไม่มีอันตรายร้ายแรงถึงแก่ชีวิต และไม่มีผลต่ออวัยวะภายในใดๆ ทั้งสิ้น

โรคด่างขาว อาจจะทำให้เข้าใจผิดคิดว่าเป็นโรคเกลื้อน หรือโรคเรื้อน ทั้งนี้การวินิจฉัยต้องใช้ดุลยพินิจจากแพทย์

สาเหตุ

- ไม่ทราบสาเหตุแน่ชัด
- เชื่อว่าเกิดจากความผิดปกติของระบบภูมิคุ้มกันของร่างกายที่มีการทำลายของเซลล์เม็ดสี ทำให้เกิดรอยขาวขึ้น
- เกี่ยวข้องกับพันธุกรรม พบได้ประมาณ 30%

โรคนี้อาจจะลามขึ้นได้ถ้าผู้ป่วยมีภาวะ *เครียดหรือมีการกระแทก ขูดขีด* ดังนั้น ควรระวังตัวไม่ให้เกิดแผลหรือการกระแทก

BIOGRAPHY

Name	Chulaphan Rachawong
Date of birth	19 September 1986
Educational attainment	
2015-present	Master of Science Program in Clinical Dermatology
2014-2015	Research Fellow of Dermatology
2011	Doctor of Medicine
Working Experience	
2015-present	Master of Science Program in Clinical Dermatology, Chulabhorn International College of Medicine, Thammasat University, Thailand
2014-2015	Research Fellow, Department of Internal Medicine, Ramathibodi Hospital, Mahidol University, Bangkok, Thailand.
2012-2014	Intern at Doi Lor Hospital, Chiang Mai, Thailand
2011-2012	Intern at Nakornping Hospital, Chiang Mai, Thailand
2011	Specialty Training in Dermatology and Plastic Surgery, Nippon Medical University, Tokyo, Japan.
Publication	Rachawong C., Rajatanavin N., Cosmetic camouflage a useful alternative therapy for vitiligo patients, Thai J. Dermatol.2015, 31(2). 105-12.
Award	-